

American Artisan

Founded 1890

The Warm Air Heating and Sheet Metal Journal

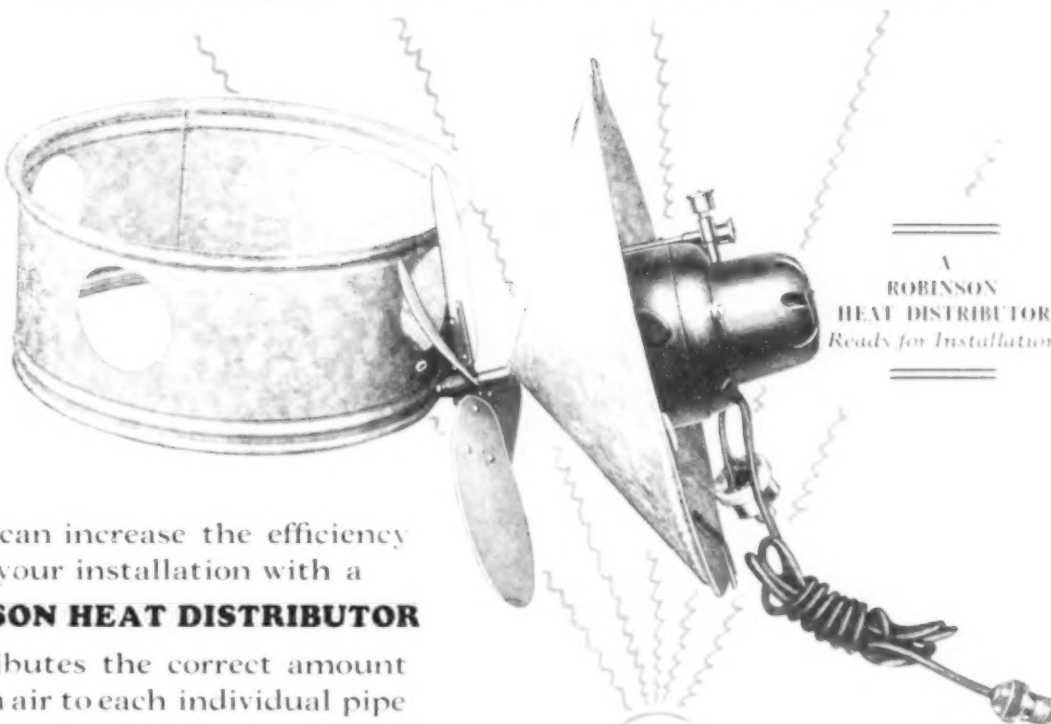
Vol. 96, No. 11

CHICAGO, SEPTEMBER 15, 1928

\$2.00 Per Year

Clean Heat Equally Distributed with a **Robinson Heat Distributor**

The
Last
Word
in
Forced
Air
Heating



A
ROBINSON
HEAT DISTRIBUTOR
Ready for Installation

YOU can increase the efficiency
of your installation with a
ROBINSON HEAT DISTRIBUTOR

It distributes the correct amount
of warm air to each individual pipe

Allow one of these Jobbers to send you Full Descriptive
Material and Quotations—No Obligations—on your part

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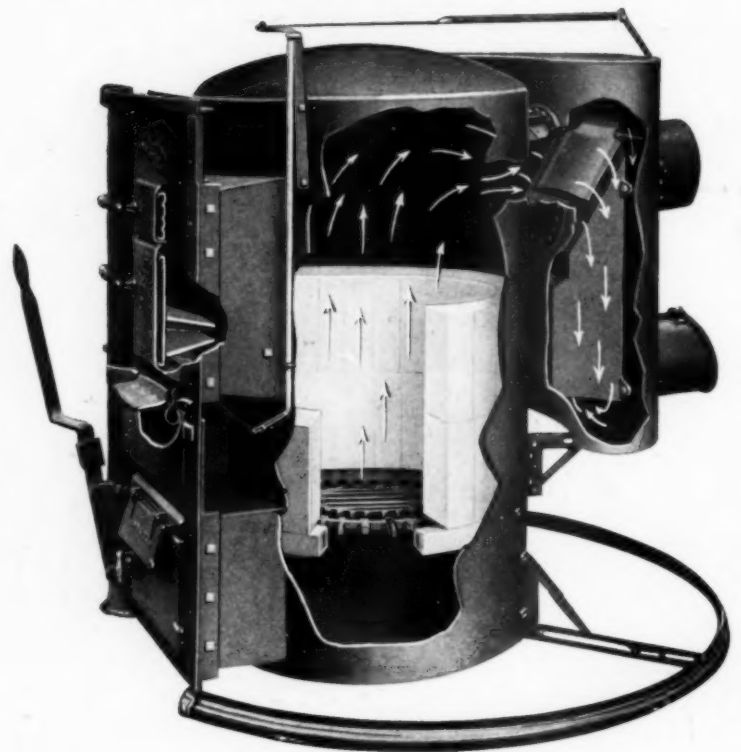
The **NEW** Improved Exclusive feature construction **COL-BURN HEATER**

ELECTRIC WELDED
ALL STEEL SEPARATE
POUCHES—with cast front.

The best, most permanently tight and leak proof construction obtainable.

NOTICE the NEW and exclusive method of fastening to front. Not only better but easier and quicker to put on. This improved design makes gas and soot leakage into warm air chamber impossible.

Another feature—Welded Steel Cleanout Collar.



SELL THIS NEW FURNACE

A. A.

THERE is no other furnace constructed like it—it's a new idea thoroughly tested. Welding is the only permanently tight joint and all Col-Burn welds are expertly welded.

Col-Burn
Heater Co.
Division of
ENTERPRISE
BOILER & TANK
WORKS
1955 North Long Ave.
CHICAGO

The Col-Burn was always a high grade furnace—now it is better than ever. Our new plant—new machinery—new and better facilities insure you of still better service on this new and better Col-Burn Heater.

Grow with the Col-Burn—its price and liberal agency terms with this new high quality make it the most attractive furnace proposition of the year.

WRITE FOR FULL DETAILS OF THE FURNACE
AND OUR DEALER POLICY NOW—

← **SEND - THE - COUPON - TODAY**
Col-Burn Heater Company

Division of
ENTERPRISE BOILER & TANK WORKS

1955 N. Long Avenue

Chicago, Illinois

Gentlemen:—
We are interested in the
NEW improved Col-Burn.
Send us literature and full de-
tails concerning both the fur-
nace and your Dealer Policy.

Name

Address

Heating Merchants Who are Genuinely interested in Increasing Profits . . . Will find the Opportunity in the Sunbeam 4 Point Selling Plan



Remember how Mahomet went to the mountain when the mountain would not come to him? Heretofore, the same situation has obtained in the furnace industry. You could not take the furnace to the prospect. You took the prospect to the furnace—when you could persuade him to make the trip. . . . But that was before the Sunbeam Miniature Aluminum Furnace was available.



At the left is shown the Sunbeam Miniature Aluminum Furnace and the special case in which it fits. This Miniature is a replica of the new 1000 Series Sunbeam with one piece radiator; feed section and ash pit extending outside of the front of the furnace. It is made from real patterns to a scale of 3 inches to the foot.

Take the Mountain to Mahomet

When you have a better furnace to sell—a furnace replete with advantages and talking points such as the New Sunbeam Warm-Air Furnaces, 1000 Series—you are handicapped unless your prospects have an opportunity to inspect and examine the product. You lose many possible sales because they fail to appreciate all its numerous superiorities, which an examination would reveal.

But you need not lose any sales of Sunbeam Warm-Air Furnaces, 1000 Series, because of this difficulty. You can bring the furnace right into the prospect's living room. Show him the massive one piece radiator, cleanout and smoke collar cast in one piece; the absence of vertical joints within warm-air chamber; the large combustion chamber and heavy fire pots; the hot blast, vapor pan, upright shaking handle and the score of other construction features.

You can do it with the Miniature Aluminum Furnace which shows Sunbeam design in every detail.

This Miniature Furnace is 12 inches in height and is furnished to Sunbeam Dealers in a special Fabrikoid covered case, attractively lined in purple velveteen to set off the Miniature when the case is open. A complete retail selling outfit, literature, order blanks, portfolio and a small register can also be accommodated in the case.

Let us tell you how you can obtain one.

This Miniature Furnace; Sunbeam deferred payments with as long as 2 years to pay; the complete assortment of advertising literature—plus the new advanced Sunbeam Warm-Air Furnaces, 1000 Series, give Sunbeam Dealers a decided advantage. Return the coupon for complete details.

THE FOX FURNACE COMPANY, ELYRIA, OHIO

Largest Makers of Heating Equipment in the World

SUNBEAM

WARM-AIR HEATING

The Fox Furnace Co.,
Elyria, Ohio.

Please send us complete information about the new Sunbeam 4 Point Selling Plan. Also send a copy of the 40-page Catalog and Heating Manual.

Name

Address

City and State A-8

Published Weekly by American Artisan and Hardware Record, Inc., 620 South Michigan Avenue, Chicago, Illinois. AMERICAN ARTISAN—the Warm Air Heating and Sheet Metal Journal—entered as second class matter, March 26, 1928, at the Post Office at Chicago, Illinois, under act of March 3, 1879. Formerly entered on June 23, 1887, as American Artisan and Hardware Record.

AGAIN FIRST WITH THE LATEST



THE ONLY TUBULAR horizontal furnace on the market with low enough casing to fit the ordinary basement. Cases up five feet. Either brick or steel. Ingot iron tubes, direct damper, two shaker handles, lined firebox, double clean-outs, big fire door, will handle from twenty to thirty-five ten-inch pipes, just the thing for the big homes or schools or public buildings. **SOLD ONLY THROUGH THE DEALER.**

Write for prices or send us your plans, our engineering department will lay out a job for you.

Either fan or gravity circulation

Floral City Heater Co.

Chicago Office
1654 Monadnock Building

MONROE, MICHIGAN

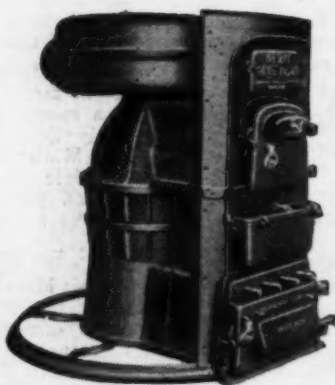
Detroit Office
4453 Cass Avenue

Announcing—

A New and Better furnace

In the NEW
NESBIT
"Moist Heat"
(Registered)
Furnace

You will find many outstanding selling points, not to be found on any others, and in addition all of the modern features of construction so necessary to the up-building of a successful and lasting heating business.



*Write for Catalogue
and Our Agency Plan*

*A few of the
Outstanding Features*

- "Oversize" construction.
- Extra large humidifier.
- Pouches extend thru and beyond the front.
- Solid one-piece base.
- Brass bolts and hinge pins.
- Large doors.
- Heavily ribbed firepot and combustion chamber.
- Upright E-Z Shaker if desired.

STANDARD FURNACE & SUPPLY CO.

Complete Furnace Service At Your Command

OMAHA, NEBRASKA

Mention AMERICAN ARTISAN in your reply—Thank you!

How much will your business be worth ten years from today?

THAT depends on how well you are establishing yourself right now. Naturally you want your business to be well established, naturally you want to see your customer list grow, but are you making the kind of customers that lead to this condition?

Suppose you make thirty warm air furnace installations this season. Now if these thirty installations do not cause any new business to come your way *solely* by reason of the merit of your work and the quality of the furnace you sell, you are not on the right track.

You can be sure that if these customers are not boasting to their neighbors and friends about the wonderful heating service your installation and furnace is giving them they are not creating new customers for you.



All very simple you say---true enough---and you've heard it time after time *but* it still is very important.

Dealers who sell the Weir Steel Furnace know how important it is to sell strictly high quality and they are making their furnace business worth much more to them each year *with the Weir.*

The Weir Steel Furnace is the *leader*---it is now in its 47th year of success.

It is better than ever and more dealers are selling the Weir than ever before.

Five or ten years from today with Standard Code Installations and the Weir agency you can be *sure* your business will be worth much more than it is now.

Just ask us to show you in detail why the Weir will make your business grow.

The MEYER FURNACE CO.
Peoria, Illinois

Only
Performance
Counts

FURNACE men make reputations and build business on what they do, not what they talk about.

What you want is a furnace you can talk about—one that promises big things in economy and durability—then fulfills them.

The Moncrief is that kind of furnace. Get acquainted with it and let it make money—and a reputation—for you.

Send for particulars today

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Eastern Office: Room 1306, 11 W. 42nd St.,
New York City - E. L. Garner, Manager

*We supply everything used
on a warm air heating job*

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August Hery & Son, Mack Ave. at Drexel, Detroit.
The Henry Furnace & Foundry Co., Pittsburgh, Pa.
Frontier Water & Steam Supply Co., 366 Oak St.—
481 Elliott St., Buffalo, New York.

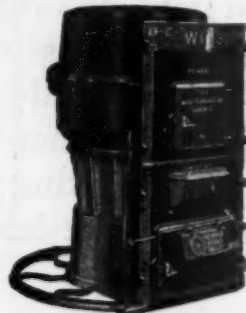
Johnson Furnace Co.,
Kansas City, Mo.
E. A. Higgins Co., 1112
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Moncrief Furnace Co.,
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Wilkes-Barre Hdwe. &
Stove Co., 18-20 So.
Washington St., Wilkes-
Barre, Pa.
The Crawford Heating
Co., Steubenville, Ohio.
The Henry Furnace &
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St., Toledo, Ohio

EASTERN OFFICE
Room 1306, 11 W. 42nd
St., New York City
E. L. Garner, Manager



MONCRIEF

*The large increase
in Wise business
has again proved
Wise leadership in
bringing out—*



WISE OPEN DOME
CAST FURNACE

A Better Fire Pot



WISE 20 SERIES CAST
FURNACE

A Better Radiator



WISE STEEL FURNACE

A Better Steel Furnace

FIND out now all about the Better Wise Steel Furnace and the big improvements on the famous Wise Cast Furnaces—Write for special broadsides and our new Catalog No. 23, just off the press, which illustrate and describe Wise furnaces and these new improvements in detail.

The Wise Furnace Company
AKRON, OHIO

The CARBURETOR

DOES

IT



*The Famous Superior
Super-Smokeless Warm Air
Heater, showing air inlet to
the carburetor.*

On to a New Installation Record!

THE Superior Super-Smokeless is proving itself a winner every time! You've never had a warm air heater that was such a sure-fire success.

It is based on a simple, understandable principle. A principle that you can easily explain and sell to your prospects. The special carburetor projects a supply of heated fresh air above the fire, converting the smoke and gases into additional usable heat. Just as the carburetor in an automobile turns the liquid gasoline into a source of tremendous power.

You can clinch the sale every time by stressing the great fuel economy of using every ounce of heat energy that formerly belched out of the chimney in black clouds.

This company believes in utmost protection to the dealer—the logical link between factory and consumer.

RICHARDSON & BOYNTON Co

Manufacturers of "Richardson" "Perfect" Heating and Cooking Apparatus Since 1837

260 Fifth Avenue

New York City

New York Utica Newark Philadelphia Boston Chicago Buffalo Minneapolis Cincinnati Pittsburgh Detroit Providence

When writing mention AMERICAN ARTISAN—Thank you!



COLD AIR is just as important as WARM AIR

—A little easier to handle to be sure but it needs good quality pipe and easily adjustable elbows.

The handiest COLD AIR pipe and elbows come from the home of **HANDY PIPE**.

Write for catalog No. 45 which tells you more about it.

F. MEYER & BRO. CO.
PEORIA, ILL.



Galvanized
Adjustable
Elbows

LIQUID ASBESTOS

SOMETHING BETTER AND ENTIRELY DIFFERENT

ELIMINATES the use of Asbestos Paper. Liquid Asbestos No. 3, in white is a covering and insulator for old and new furnaces. Liquid Asbestos No. 9, in six distinct colors for furnaces and boilers.

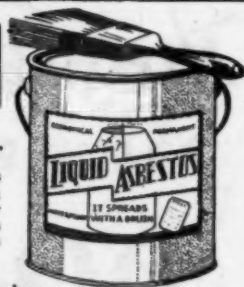
IT'S FIRE AND WATERPROOF
Makes all pipes and fittings 100% seamless.

A tailor made suit for every heating plant.
IT SPREADS WITH A BRUSH.

LIVE WIRE FURNACE DEALERS AND PLUMBERS ARE INCREASING THEIR SALES.

Ask your supply jobber or write for dealers proposition today.

B. & F. MANUFACTURING CO., 422 Court Avenue
Des Moines, Iowa



BOLTS

WE MANUFACTURE A COMPLETE LINE OF BOLT PRODUCTS, INCLUDING STOVE BOLTS, CARTRIDGE BOLTS, MACHINE BOLTS, LAG BOLTS, NUTS, COTTER PINS, ETC. ALSO STOVE RODS, SMALL RIVETS AND HINGE PINS. CATALOG ON REQUEST.

THE LAMSON & SESSIONS CO
THE KIRK-LATTY CO.
1971 W. 85th St. Cleveland, O.

PATTERNS FOR STOVES AND HEATERS
THE CLEVELAND CASTINGS PATTERN COMPANY
CLEVELAND, OHIO

PATTERNS
FOR STOVES AND HEATERS FIRST-CLASS
IN WOOD and IRON
VEDDER PATTERN WORKS ESTABLISHED 1835 TROY, N. Y.

IRON AND WOOD
STOVE PATTERNS
QUINCY PATTERN COMPANY
QUINCY, ILLINOIS

IF there is a tool or machine that you need and you don't know where to get it—

Write to the

Notes and Queries Dept.

of

AMERICAN ARTISAN

Good News for all Furnace Dealers

A new and more complete line
of the well known Thermo Cast
Furnaces.

Full details are contained in our
new folder "A". Ask for a free copy
with the coupon.

American Furnace Co.

St. Louis, Mo.

Clip--Fill Out and Mail



American Furnace Co.
St. Louis, Mo.

Please send free copy of Folder "A" describing
Thermo Furnaces.

Name

Street

City and State.....

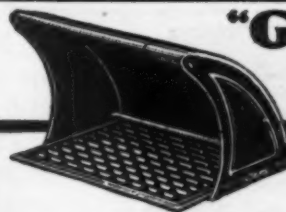


FANNER STOVE AND FURNACE TRIMMINGS

For Quality and Service use Fanner
Trimmings. We operate our own
Malleable and Gray Iron Foundries.

Write today for latest illustrated
catalog which lists and describes
our complete line.

THE FANNER MFG. COMPANY
BROOKSIDE PARK CLEVELAND, OHIO



"GEM" ADJUSTABLE REGISTER SHIELDS

There is no time like
the present—the start of
the home-heating season
—to stage a good window

or store display of
"GEM" ADJUSTABLE
REGISTER SHIELDS, and talk them up to your
customers.

"Gem" Floor Shield, Black retails
at \$1.25; Ox. Cop. at \$1.50; "Gem"
Wall Shield, Black, 65c; Ox. Cop., 75c.
Adjustable 10" to 19".



1140 BROADWAY, NEW YORK, N.Y.

BUY FROM YOUR JOBBER

INDEPENDENT

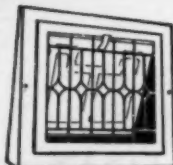
Registers

MADE well, look
well and per-
form well. Finished
in a variety of colors.

INDEPENDENT
REGISTER & MFG. CO.

3471 E. 93rd Street
Cleveland - Ohio

New York Branch
150 Colvin St., Rochester



Send for Catalog

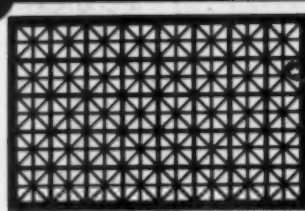
Wrought
Steel



And
Bronze

GRILLES

for all grille re-
quirements write
The Hart & Cooley Mfg. Co.
New Britain, Conn.



No. 575



No. 576



No. 578



No. 590

Mention AMERICAN ARTISAN in your reply—Thank you!

All
Standard
Finishes



STEARNS Registers

YOU'LL want these better registers in order to secure a better profit.

Your customers will want them because they meet the demand for attractiveness and practical service

100 PER CENT FREE AIR CAPACITY FOR SIZE PIPE INTENDED

Supplied in all standard finishes of course—write for our catalog which gives full details.

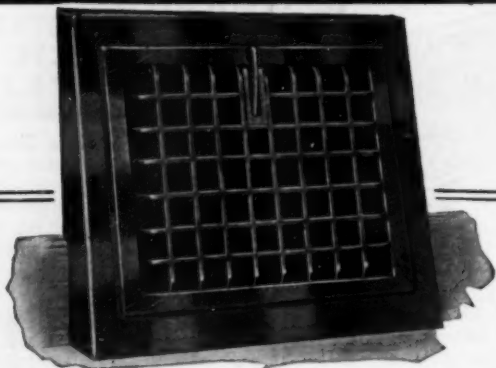
The highest grade economically priced register.

Your Jobber Can Supply You

THE STEARNS REGISTER CO.

1234 Mt. Elliott Ave.

Detroit, Michigan



The AUERISTOCRAT

of all registers, combining air capacity, decorative and concealing features.

Designed to conform with the Standard Code so they fit all standard boxes.

Auer Patented mechanical features make it perfect in operation,—quick and easy to install.

Auer's Save Hours and Dollars

The AUER REGISTER CO.

Cleveland, Ohio

The STANDARD CODE Computing Rule



Adapted
from Article Three 5th Edition

of the

STANDARD CODE

MARCH 1, 1928

Simple to Operate

THE Computing Rule is not a novelty, but, a well designed mathematical device, for figuring leader pipe and register areas for warm air heating systems. It has proven its accuracy in estimating and has passed the experimental stage. It is operated similar to an Engineer's slide rule.

The complete instructions are easily understood. You can learn to operate the Rule in less than one hour.

Results can be had without a single Division, Multiplication or Addition problem, as required in Article Three of the Standard Code. Not a chance for a mathematical error.

"Remember, you do not have to refer to a lot of loose parts or awkward tables."

Simplifies accurate estimating.

Handy Pocket Size

RULES are $5\frac{1}{2}$ inches in diameter— $\frac{1}{8}$ inch thick. Has an upper and lower revolving disc with a hairline indicating arm.

It is made of extra heavy and specially prepared celluloid, which reduces shrinkage and warping to a minimum. It is washable and unbreakable.

Can be carried comfortably in your pocket.

Here Is What The Computing Rule Will Determine:

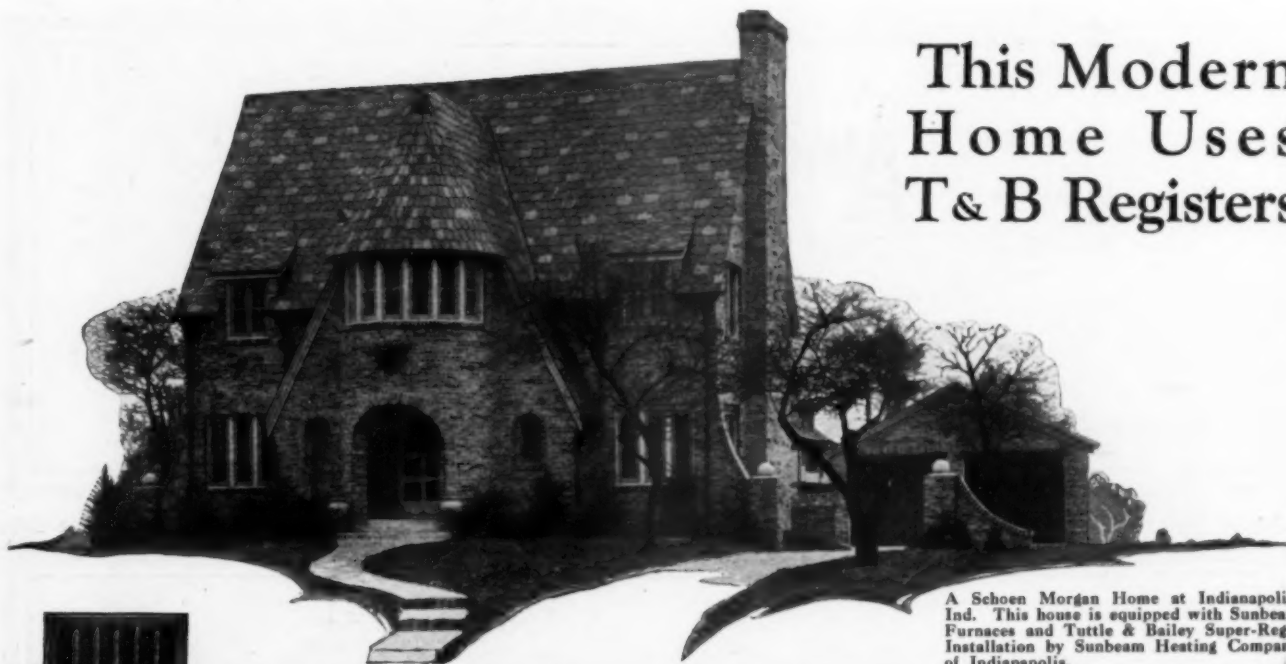
- 1 The warm air, pipe and register areas for First, Second and Third floor rooms.
- 2 The areas necessary for 70° inside temperature when the outside temperatures are ZERO, 10, 20 and 30 degrees ABOVE or BELOW zero.
- 3 The areas from the Contents, Glass, Wall, Roof and Ceiling. The factors as covered in Table "A" are represented in accurate form.
- 4 The areas for rooms having One, One and One-half and Two air changes per hour.
- 5 The Unusual Exposure requirements as the 10% for East and West and 15% for Northeast, North and Northwest rooms.

"Absolute Correct Results"

Price, \$3.00—Postpaid

AMERICAN ARTISAN

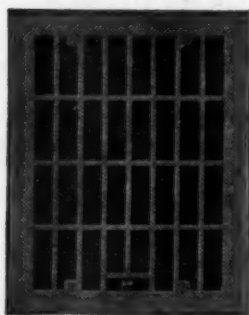
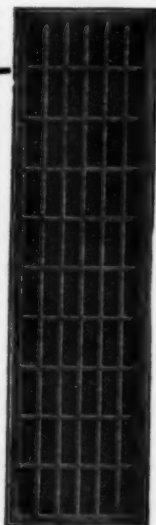
620 South Michigan Avenue
CHICAGO, ILLINOIS



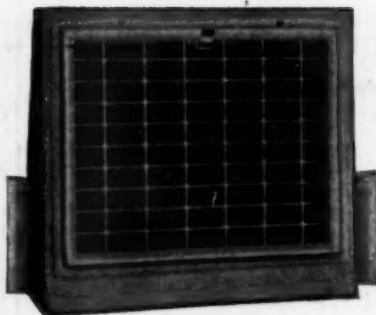
This Modern Home Uses T & B Registers

A Schoen Morgan Home at Indianapolis, Ind. This house is equipped with Sunbeam Furnaces and Tuttle & Bailey Super-Regs. Installation by Sunbeam Heating Company of Indianapolis.

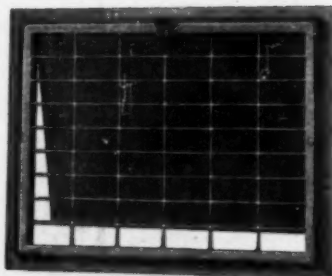
Left: Style C "Cobble" Cold Air Face (cast)—the strongest and most satisfactory ever made.



Above: Style 80 "Cobble" Floor Register — companion piece to Style C. A semi-steel register that eliminates floor recessing and close fitting.



Baseboard Register, Style 902. A beautifully designed register, equipped with new positive center movement. Two piece—non-streak face. One piece is our Style 402.



Style 32 Sidewall Register. Oblong mesh designed to match 902 Baseboard Register and the "Cobble" Line. Vertical is Style 38.

TUTTLE & BAILEY SUPER-REGS

Registered U. S. Patent Office

Newly built homes require equipment that is modern. Modern in appearance and construction—capable of giving satisfaction according to present-day ideas of what satisfaction means. And when so many builders and furnace men prefer T&B registers to install in new homes, it is only because T&B Registers meet the requirements of the times.

For one thing, compare beautiful T&B finishes with others. Note that they stack up perfectly with the color ideas of today—particularly such adaptable shades as our TANBO and TANVORY. Then consider the sturdy and scientific construction of T&B registers. How they stand up under everyday use and give maximum heating satisfaction at the same time. And how they cut down the installer's time and labor, merely because of a little extra touch here and there.

Warm Air Dealers and Furnace Men should investigate T&B Super-Regs. They are contributing a lot to Warm Air Heating—and actually helping to sell more furnaces.

TUTTLE & BAILEY MFG CO.

Makers of Registers and Grilles for 82 Years

441 Lexington Avenue, New York City

BOSTON

CHICAGO

KANSAS CITY

BRIDGEBURG, ONT.

Founded 1880

Published to Promote
Better
Warm Air Heating
and
Sheet Metal Work

American Artisan

The Warm Air Heating and Sheet Metal Journal

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Table of Contents

	Page		Page
Sheet Metal Department.....	97 to 101	Furnace Installer Has Professor, Author and Minister Advertising for Him, by George Duerr	104
Copper Holds Glass in Place, by C. H. Thomas	97	Commercial Oil Burning as Viewed from the Mechanical Standpoint, by Harry F. Tapp. .	106
Spot News	98	Heat Required Negligible for Water Evaporation, by Platte Overton.....	109
Constructing Pattern for Offset to Clear Beam in Basement, by O. W. Kothe.....	99	Modern Furnace Salesmanship Requires Appeal to the Reasonable, by George T. Sisler	110
Sheet Metal Contractors Write Advertisements for One Big Copper Company.....	101	Notes and Queries.....	112
Random Notes and Sketches, by Sidney Arnold	102	Markets	114
Warm Air Heating Department.....	104		
What's Your Bid on This Job?.....	103		

DON'T BE A KNOCKER

If you work for a man, in Heaven's name work for him. If he pays you wages that supply your bread and butter, work for him, speak well of him, and stand by him, and by the institution he represents. I think if I worked for a man, I would work for him. I would not work for him part of his time, but all of his time. I would give my undivided service or none. If put to the pinch, an ounce of loyalty is worth a pound of cleverness.

If you must vilify, condemn, and eternally disparage, why resign your position, and when you are outside damn to your heart's content.

But, I pray you, so long as you are a part of an institution, do not condemn it. Not that you will injure the institution—not that—but when you disparage the concern of which you are a part, you disparage yourself.

And don't forget—"I forgot"—won't do in business.—Elbert Hubbard.



We Heat the Sheet Warehouse in August —But Would it Pay You to Take the Same Care of Your Sheets?

Ninety-five degrees in the shade—still the heat is on, in the sheet warehouse—on all summer and winter—to keep an even temperature and avoid condensation.

And this is but typical of the care that is given to all grades and kinds of stock in the Ryerson warehouses. Each quality product is protected so that it may be delivered in good condition ready for use.

But does it pay you to heat your storerooms in the summer? Does it pay you to purchase and maintain expensive storing facilities and handling equipment to care for a stock of steel?

The cost of carrying stock, including space, equipment, handling, damage, depreciation, waste, etc., is high. So high, in fact, that conservative buyers are turning more and more to a central warehouse source where they may order on an instant notice, and depend upon results.

Partial List of Sheets Carried in Stock

Ascoloy	Patent Leveled	Deep Stamping	Partition Steel	Lead Coated (Ternes)
Black Steel	Silver Finish	Armco Enameling	Electrical	Corrugated Armco
Blue Annealed	"C" Pickled	Uniform Blue	Armco Galvanized	Corrugated Steel
Galvanized	Single Pickled	Bill Posters	Tool Steel	Armco Ingot Iron
				Allegheny Metal

Write for the Ryerson Journal and Stock List, the "key" to Immediate Steel.

JOSEPH T. RYERSON & SON INC.

ESTABLISHED 1842

Plants: Chicago, Milwaukee, St. Louis, Cincinnati, Detroit, Cleveland, Buffalo, Boston, Jersey City
Representation in: Minneapolis, Tulsa, Newark, New York,
Denver, Los Angeles, San Francisco

RYERSON

85 YEARS OF STEEL-SERVICE

Mention AMERICAN ARTISAN in your reply—Thank you!

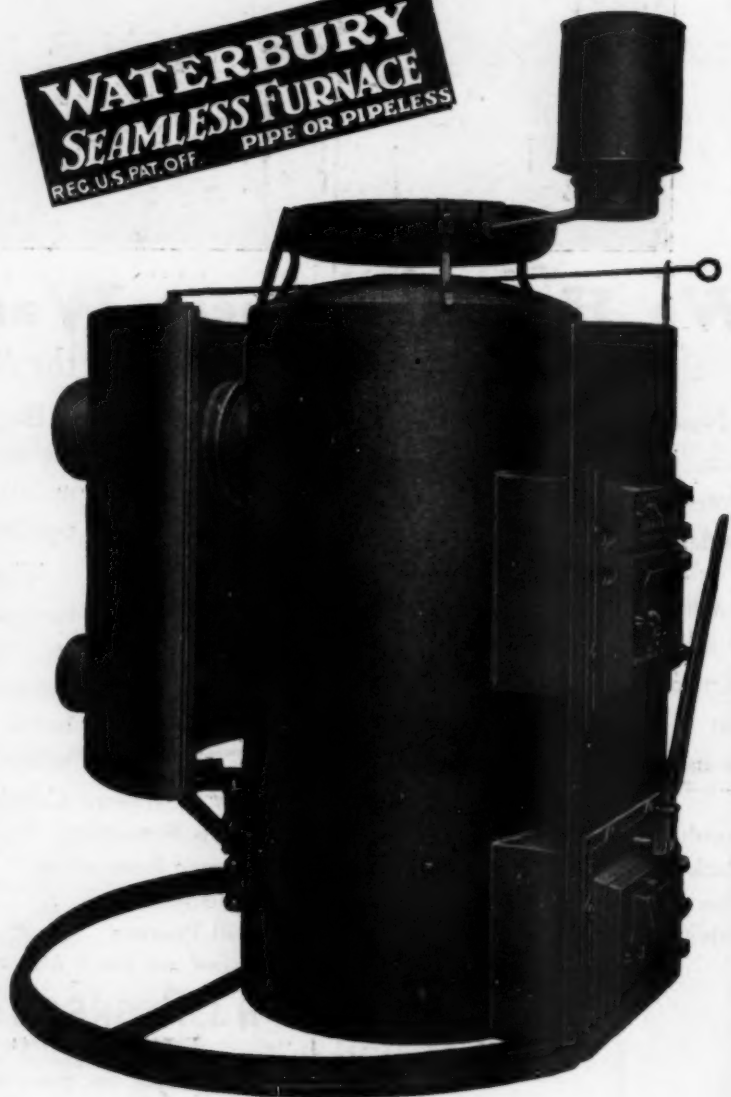
Keep Pace with Progress!

There are plenty of people who want the best!

DEALERS who sell Waterbury Seamless Steel Furnaces do not suffer from price competition. They are too busy to bother with any job that does not mean a good-sized profit. They have the furnace with features that no one else can offer. They KNOW that there are plenty of people who willingly pay MORE to get these decided advantages.

Waterbury dealers' sales are increasing as never before. Again, the last 12 months sales broke all previous records. It pays to keep pace with progress. Waterbury leads the field with seamless steel, gas-tight for life—full-sized radiators for every model; controlled humidity, certified Standard Code capacity, and many minor desirable features. Send the coupon for complete information.

**WATERBURY
SEAMLESS FURNACE**
REG. U.S. PAT. OFF. PIPE OR PIPELESS



The Waterman-Waterbury Co.
1122 Jackson St., N. E., Minneapolis, Minn.

Please send me promptly, full details about the Waterbury line and your agency proposition.

Name

Address

Complete stocks carried in

Philadelphia
Pittsburgh
New Orleans
Albany

Kansas City
Denver
Seattle
San Francisco



American Artisan

The Warm Air Heating and Sheet Metal Journal



Vol. 96

CHICAGO, SEPTEMBER 15, 1928

No. 11



Illustration Shops Copper Used in the Roof of the DuPont Conservatory, Longwood, Pennsylvania, to Hold the Glass in Place

Copper Holds Glass in Place at Du Pont Conservatory, Longwood, Pa.

Conservatories Built for Permanence as Well as for Beauty

By C. H. THOMAS

AT Longwood, which is near Kennett Square, Pennsylvania, there stands what is now known as one of the largest conservatories in the United States; rare tropical plants, flowers and vines are seen here, growing in a temperature that has been produced by the use of oil burning equipment, and in itself a thing of beauty to every one who visits the place, and it is visited annually by thousands; it is just north of the new Route 1, or Baltimore pike, about a couple of miles east of Kennett. Copper has been and is being used largely in the buildings, in which the glass is set for these immense conservatories, and here hundreds of square feet are being placed at this time.

Metal was chosen because of its rust resisting qualities and its other many valuable points which made it the one material that would successfully fill the bill at this place; much copper is seen throughout the build-

ings and has proven satisfactory in every way.

With the added stress of high temperatures, both inside and out, this copper has to withstand more than it would in the average installation, and the best grades have been chosen for their use in this building.

These conservatories represent an investment of millions, thus the materials that have been installed here have to undergo the closest scrutiny, and copper seems to be the only material that will completely take the place for what they want and that will last over a period of years, withstanding high temperatures at all times. In parts of the building where rare tropical plants are housed, tropical temperature has to be maintained so that the plants will not die; bananas are grown under glass here as well as other warm temperature plants, and thus copper serves again.

"The Eighth Wonder" Describes Ventilating System in Largest Tunnel in World

The introduction of large construction projects into the modern scheme of things has brought with it not only problems in structural engineering, but problems in the field of ventilation as well. Perhaps nowhere in the field of modern engineering has the need for adequate ventilation made itself more apparent than in the removal of automobile exhaust gases and the introduction of fresh air into the new Holland tunnel which connects lower New York City with New Jersey.

Some idea of the magnitude of this task can be imagined when it is learned that the tunnel is over 9,000 feet in length, 5,000 feet of which is actually under the waters of the Hudson River, and 30 feet in diameter, there being two such tubes, one for eastbound traffic and one

for westbound traffic.

The story of the construction of this tunnel and a description of the ventilating apparatus whose job it is to keep it supplied with fresh air, as well as to remove the exhaust gases from automobiles, is set forth in a very entertaining and instructive manner in a book, entitled "The Eighth Wonder," published by the B. F. Sturtevant Company, Boston, Massachusetts.

The Holland tunnel is the largest tunnel in the world, and the story of its construction and operation is very interesting reading. The ventilating equipment employed in this gigantic task is that of the B. F. Sturtevant Company.

SPOT NEWS

Wm. J. Thompson has purchased the sheet metal works of A. E. Albuschie, 447 Flanders street, Portland, Ore.

W. G. Schaefer and V. W. Wendlick have engaged in the sheet metal works business at 579 Union avenue, N., Portland, Ore., as W. & S. Sheet Metal Works.

V. W. Wendlick having retired from the Pacific Furnace & Sheet Metal Works, Portland, Ore., A. G. Ross will continue the business.

H. I. Kinney and Geo. W. Kinney have taken over the management of the Simplex Heat Regulator Company in Minneapolis, Minn.

Wolff, Kubly & Hirsig, 401 W. Gilman, Madison, Wis., has the contract for sheet metal work and copper store fronts for Sol Levitan store and office building.

The L. E. Glaze Furnace & Sheet Metal Construction Co., 811 Commercial street, Waterloo, Iowa, has the sheet metal contract for the residence of J. H. Cummings.

The Broadway Sheet Metal Co., 424 Vancouver, Portland, Ore., has the sheet metal contract for the Mormon Church.

McCluney Bros., 1023½ W. Pico street, Los Angeles, Cal., has the sheet metal contract for warehouse of the Spartan Grocery Co.

The Paramount Sheet Metal Works, Glendale, Cal., has the contract for sheet metal work on Methodist Episcopal Church in Fullerton, Cal., at \$2,120.

The Golden Gate Sheet Metal Works, 1515 14th street, Oakland, Cal., submitted the only bid, at \$1,247.50, for alterations to air ducts in arena basement of Municipal Auditorium.

Booth & Herboth, Marysville, Cal., have the heating, ventilating, sheet metal and plumbing contract for high school building at Placerville, Cal.

The Main Cornice Works, Los Angeles, Cal., has the sheet metal contract for mess hall at Soldiers' Home, and also for the addition to the Fullerton Union High School of Fullerton.

N. Hirschberg has begun the construction of a tin shop, 25x80 feet, on the corner of 83rd street and Compton avenue, Los Angeles, Cal.

Allen S. Jones has engaged in the sheet metal business at 1155 Venice boulevard, Los Angeles, Cal., as Los Angeles Metal Stamping Co.

The Duncan Sheet Metal Works Co., 721 Tuttle street, Des Moines, Iowa, has the sheet metal work and metal ceiling contract for L. Oransky & Son department store.

Magnuson & Trieb, 1607 W. 43rd street, have been awarded the sheet metal contract for Sisters' Home, 58th and Michigan, Kansas City, Mo.

The Oklahoma Roof & Cornice Co., 7 East Brady street, Tulsa, Okla., has the contract for sheet metal work for Adams & Redding residences at 2614 S. Trenton, 1247 East 29th street, and Lot 27, Block 29, Sunset Terrace.

The Chevy Furnace Co. has been incorporated in Louisville, Ky., by William Jekel, 4129 Taylor boulevard, and others.

The Turner Roofing & Supply Co., 1308 East Houston street, San Antonio, Tex., has been awarded the sheet metal and roofing contract for \$600,000 Plaza Hotel, in Corpus Christi, Tex.

Louisville, Kentucky, Contractors Hold Good Time Picnic

The Louisville Ladies' Auxiliary were guests of the Sheet Metal and Roofing Contractors' Association at a picnic they gave at Fern Creek, Kentucky, Sunday, August 19th.

This is an annual picnic which the contractors give for their members and families and no expense was spared to make it enjoyable. A real chicken dinner was the first number on the program, which was followed by dancing, games for the children and card games for those who did not care to dance.

Eddie Welsh dispensed the Heim Ge Macht and served with distinction. The distinguished waiters added much to the dinner—among them were Bill Mehler, Fred and Henry Schwab, Chas. Schott, Winston Johnson and Gus Krauth and Bill Fischer.

Our old friend Ed. Merrick in a knee length apron and a corn-cob pipe supplied each and every one at the table with a generous helping of chicken giblet gravy, which made him the most popular man on the grounds.

The menu consisted of fried chicken, corn on the cob, Cadofel salad, sliced tomatoes, slaw, olives and pickles and ice cream. Second course—more fried chicken, giblet gravy, corn on the cob and repeat for the other six courses.

The next social gathering will be given by the ladies at the home of Mr. and Mrs. Geo. Goldner, Saturday afternoon and evening.

T. & B. Has New Pamphlet on Their "Cobble" Register

Tuttle & Bailey Manufacturing Company, 441 Lexington Avenue, New York City, have recently issued a folder describing their new "Cobble" line of registers.

In order to learn how this new register permits blending of colors and how savings are effected in its installation, the furnace installer should write for a copy of the pamphlet, which will be mailed upon request.

Constructing Pattern for Offset to Clear Beam in Basement

*Problem Met with Many Times
by Warm Air Furnace Installers*

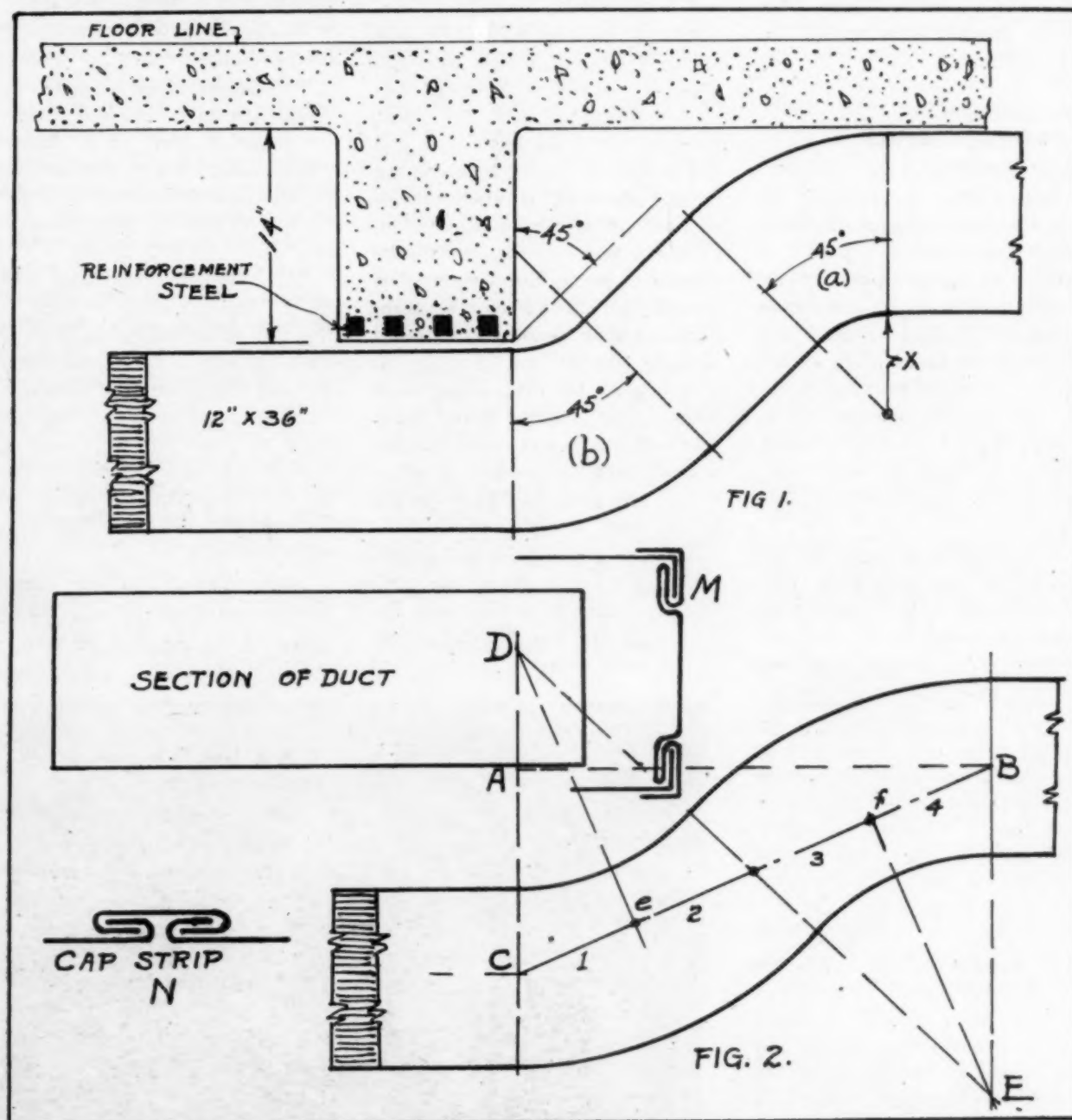
By O. W. KOTHE, Principal St. Louis Technical Institute

RESPONDING to the inquiry of Tony Zicke, San Francisco, California, I submit the accompanying drawing will show the usual procedure of making offsets to clear beams. The type shown in Fig. 1 is the simplest and easiest to make.

It is merely two 45-deg. angles joined to straight pipe, as (a) and (b) indicate. The radius X , can be made anything, from one-half the depth to two times the depth.

Another offset is shown at Fig 2, which is harder to lay out, since we

have a length A-B and an offset A-C to deal with, and where the radius of elbow is proportioned so the two angles come together. The line B-C is divided in four equal parts as 1-2-3-4, and from the points e-f, lines are drawn perpendicular



Detailing of Duct Offsets

until they intersect the end lines as in points D and E. Draw the line D-E., which divides the offset into two angles, the one being placed reverse to the other. Next measure your depth on each side of center line, and using D and E as centers, strike arcs, thus making the offset as shown.

The sides of Fig. 1 and Fig. 2 are already patterns, only edges must be allowed in accordance to the sort of seam you wish made.

At M we show the hammered lock, used to a great extent on such work.

At N, is a section of the cross strip for joining, permanently, the edges together.

Trade Development Book Nearing Completion— Mail by December 1

President Paul L. Biersach of the National Association of Sheet Metal Contractors has issued a statement to the effect that work has now progressed on the Trade Development Book to a point where it is now about ready to go to the printer. The actual printing of the book will require between thirty and sixty days, so that the mailing of the book should be under way about the first of December of this year.

President Biersach urges that all members of the association who have not taken up their pledges by sending the money to the National Secretary, W. C. Markle, should do so with as little delay as is possible.

All other association work is being more or less held in abeyance in order that the entire attention can be concentrated on the production of the book. When this is safely in the hands of the printer, other association matters will be taken up in the order of their importance.

To this end the president asks that all members of the association have patience and respond as quickly as possible to the requests of committee chairmen having the work in hand. The production of the book is a herculean task, as all will agree once it is produced.

Therefore, if you have made re-

quests of the association which have not been attended to as promptly as you think they should have been, just bear in mind that the officers and committee members of the association are now concentrating the greater part of their efforts to the production of the book. It should be ready for mailing about the first of December. This is the statement of President Paul L. Biersach, who is in close touch with all phases of the work.

Small Oxy-Acetylene Generator Makes Large Cut Successfully

A scrap yard in the middle west had a 3½-ton cast iron split fly-wheel to reduce to handling size. Each casting had a 7 ft. radius, measured 24 in. across the face and had a depth of 3¼ in. except at the center, where an internal rib increased the dimension to 6½ in. Cast iron is, of course, much more difficult to cut by the oxy-acetylene process than either steel or wrought iron, and some trouble was expected in doing this job.

Although, at first thought, it seemed like sending a boy on a man's errand, it was decided to use a small acetylene generator of a well-known portable type for a job of this type.

Much to the surprise and gratification of the manager of the yard, two cuts were made with ease, the first being shown in the illustration.

The total time for the two cuts

was 40 minutes. Gas consumption amounted to 250 cu. ft. of oxygen and 50 cu. ft. of acetylene—an overload of about 35 per cent on the generator, which is very conservatively rated.

Master Sheet Metal Men of Wisconsin Confer in Milwaukee

The Master Sheet Metal Contractors' Association of Wisconsin met in Milwaukee September 5.

The following members were present: O. Geussenhainer, H. Geussenhainer, N. Ording, W. Gehrke, W. A. Belau, secretary.

Minutes of the July meeting were read and approved.

O. Geussenhainer reported that he had put much time and study to the tentative draft of a Uniform Mechanics Lien Act and has sent his recommendations to the Department of Commerce as requested, on July 31.

The association has been asked by the national office to remit for the 100 subscriptions made at the state convention and it was recommended that a letter be sent to all state and local members requesting them to remit for their subscriptions if they have not already done so. All subscriptions to be sent through Mr. Alfred Goethel, our state treasurer.

The matter of the state convention committee was brought up and held over until the next meeting for consideration.



Cutting Large Flywheel with Torch

Sheet Metal Contractors Write Advertisements for One Big Copper Company

Contractors Find Well Advertised Product Easy to Sell Public

IF YOU have been following the recent Anaconda advertisements appearing in this publication you will appreciate the fact that they are so full of human interest because to a large extent they are being written by sheet metal men themselves all over the country. This is in accordance with a new practice inaugurated by that company some time ago.

Naturally, the average sheet metal man doesn't set himself up as an expert when it comes to writing advertisements. He may occasionally write an advertisement on the back of an envelope, for insertion in his own home newspaper, but for the most part he is content to let the specialists do their stuff. However, he is full of his subject, and that counts for a whole lot in the writing of a good advertisement. The American Brass Company, wisely realizing this, invited comments from their good friends in the sheet metal industry to help them in the preparation of copy for the sheet metal papers. In effect they said the following:

"You have been selling Anaconda copper for quite a while now, and no doubt you have some interesting slants on the subject. Will you jot down some of the reasons why you find Anaconda copper a good line to handle—a help in building up your sheet metal business to its present size? Tell us in your own way just why it meets the requirements of your customers—tell us anything you think would make good reading for other people in the sheet metal business."

Naturally, the contractors couldn't resist this appeal. They were full of their text and willing to tell why Anaconda copper should be put on every house in the form of gutters, rain-pipes and roof flashings. All over the country sheet metal veter-

ans were writing ads for the new Anaconda campaign. It has been jocularly said that it was nothing for a customer asking for a bid, to be told, "All right—just as soon as I finish this Anaconda ad. See you right after lunch."

From all points of the compass, the ads came rolling in to the offices of The American Brass Company, written on letterheads hailing from a dozen different states. And it may be added, that some of them were so interesting that the American Brass Company asked for photographs of the writers—and other photographs showing their work shops and typical Anaconda installations.

From Phil Kromer & Sons, Columbus, Ohio, came word to the effect that since taking on the Anaconda line, they had had none but satisfied customers—with business looking up.

Jack Curran, who does a big business in Scarsdale, N. Y., wrote that sales had increased steadily since he started standardizing on Anaconda copper. He added that the advertising done by Anaconda had been a great help since it had made his customers familiar with Anaconda copper.

Fred Schwing, Bridgeport, Connecticut, stated it was always a help if you could assure a customer the job would be done with a well advertised copper. He felt that association with the Anaconda name and prestige was one of the reasons why their business had gone ahead so fast.

Philip Christmann & Sons, Buffalo, New York, said it was comparatively easy to sell Anaconda copper, because the advertising done by the Anaconda organization had performed valuable missionary work, making it just that much easier for them to convince both

customers and prospects of the worthiness of good materials.

The well known firm of Klein & Kavanagh, New York city, dwelt particularly on the uniformity and easy working qualities of Anaconda copper, which enabled them to achieve highly ornamental and artistic results in sheet metal work. In general, the contractors modestly gave the bulk of the credit to Anaconda copper and not enough to their own skill in working it. The truth is, of course, that the best jobs are always a combination of skilled workmanship and worthy materials well sold.

One and all, however, agreed that advertising was a most effective selling help, since it brought the story of Anaconda sheet copper into millions of homes in all parts of the country and greatly facilitated the work of actual selling. The campaign is now fairly under way, with enthusiastic sheet metal craftsmen dashing off spirited copy in a way that shows they might easily have become A-1 ad writers if they had not elected to be A-1 sheet metal artisans, with an even greater service to the public.

J. L. Kingston, Bloomington, Illinois, Opens Business in Galesburg

J. L. Kingston, J. L. Kingston Sheet Metal & Roofing, 505 North Prairie Street, Bloomington, Illinois, has opened a sheet metal and roofing establishment located at 220 East Simmons Street, Galesburg, Illinois. The new firm will operate under the name of Kingston-Larson Asbestos and Roofing Company. P. A. Peach will be manager of the company.

Mr. Kingston will appreciate it if manufacturers of sheet metal and roofing products will send him catalogs and price lists.

Random Notes and Sketches

By Sidney Arnold

"The essence of humor is sensibility; warm, tender fellow-feeling with all forms of existence."—Carlyle.

L. N. Wagner, 1846 Jackson street, Dubuque, Iowa, who travels Illinois and Wisconsin territory for Excelsior Stove & Manufacturing Company, Quincy, Illinois, came in one day last week seeking some information. I was very glad to be able to give him what he wanted and enjoyed a visit with him.

* * *

Pullman Porter: "Yo' berth, please, ma'am?"

Virginia Hutchison, Louisville, very indignant: "It's none of your business, you impudent rascal."

Pullman Porter: "But, ma'am, you can't go to bed until you tell me."

Miss Hutchison, still more indignant: "Well, if you must know, it was April 1, 1912."

* * *

Here's one that Mr. Skinner of the Metaphram Regulator Company, told me during a recent visit to the office:

Liza and Fannie were discussing their Sunday night dates.

"Yes, mam, I done had me a neckin' party last night!"

"Neckin' party? Law, chile, don't you know them is out of style? They had them four thousand years ago."

"How you done know they had them four thousand years ago?"

"Cause my mammy done told me that the Bible says that King Solomon took the Queen of Sheba into the banquet hall and he fed her wine and nectar!"

* * *

Here's a little friendly advice to Roy Harrison, Rudy Furnace Company, all wrapped up in the following parcel:

Pat: "Have you christened your new baby yet?"

Mike: "We have."

Pat: "And phwat did you call it?"

Mike: "Hazel."

Pat: "Sure, bad cess to ye; with

223 saints to name the kid after, ye had to go and name it after a nut."

* * *

The accompanying illustration is that of Bernice Ann Kahlenberg, the one-year-old daughter of A. H. and Mrs. Kahlenberg. Mr. Kahlenberg is with Friedley-Voshardt Company, 733 South Halsted Street,



Bernice Ann Kahlenberg

Chicago. Miss Kahlenberg had her first anniversary on August 13 of this year. Her daddy is very proud of her and with good and sufficient reason. Even at this early stage in her career she gives every promise of even surpassing the beauty of her mother and she has a reproduction of the charming personality of her father. During my visit at the plant of the Friedley-Voshardt Company I also visited with Mr. Voshardt and with Mr. Biersach, President of the National Association of Sheet Metal Contractors.

* * *

The Judge: "So your name's Joshua, eh? You're not the Joshua that commanded the sun to stand still, are you?"

Joshua Holden: "Lor' no, Judge. Ah'm de man dat made de moon-shine."

* * *

No Use for Breath

W. A. Fingles, of Baltimore, was driving through the section where he formerly lived, and stopped at a log

cabin to get a drink. An old black woman came out and he recognized her as one from his old plantation. She was fat and slovenly and had a corn-cob pipe in her mouth, black, foul and dribbling over her chin. He spoke to her:

"Look here, aunty, aren't you a good woman?"

"Yes, sah, I is."

"Don't you know what the good book says about keeping yourself clean and undefiled?"

"Yes, sah, I heered about dat."

"Well, what do you suppose they will say to you if you try to get into heaven with your breath smelling from that dirty old pipe?"

"Now, hole on der, massa, I 'spects when I die and go to heaven I'se gonna leave my breff behind."

* * *

S. S. Tuthill, secretary of American Zinc Institute, was looking over the inferno of Vesuvius in full operation.

"Ain't this just like hell?" he said in his excitement.

"Ah! zese Americans!" exclaimed a Frenchman, "where they have not been?"

* * *

One day our own Jack Johnson was seated in the waitingroom of a station with his odorous pipe in his mouth. One of the attendants called his attention to the sign, "No smoking."

"Well," said Jack, "I'm not smoking."

"But you have your pipe in your mouth."

"Sure, and I've shoes on my feet, but I'm not walking."

* * *

Quite Cool, Indeed

A hotel was on fire and the guests, gathered out in front, were watching the flames.

"Nothing to get excited about," one traveling man, Dave Farquhar, I think it was, was boasting. "I took my time about dressing. Lighted a cigarette. Didn't like the knot in my necktie and retied it. That's how cool I was."

"Fine," remarked a bystander, "but why didn't you put on your pants?"

**WOULD YOU HAVE
BID
MORE OR LESS
THAN
\$387 ON THIS JOB?
IS BID OF \$317 TOO LOW
FOR STANDARD CODE
INSTALLATION?**

THE Standard Code warm air heating worm has turned! Warm air furnace installers of the better class are at last arousing themselves to a point where they will soon squelch the man who thinks he is doing a wonderful thing when he takes a heating job away from another installer, but at so low a figure that he cannot possibly live up to the Code requirements and make his salt at it.

Furnace installers of the better class are tired of this sort of thing and they are now beginning to think to the end that they can eradicate themselves from their dilemma.

A. L. Mayers, Pekin Hardware Company, Pekin, Illinois, is presenting a problem to readers of *AMERICAN ARTISAN* on the matter of price for a Standard Code job. What Mr. Mayers wants is a representative figure from a Standard Code dealer in each part of the country. His idea is to check these prices with his own so that he can see in order to determine whether his own prices are in or out of line with what they should be. It seems that he is also troubled with competition of the type that to take work at any price is good business practice.

Here is a description of the job he has in mind:

AMERICAN ARTISAN.

Gentlemen: I am mailing specifications of a Standard Code heat-

WARM AIR REQUIREMENTS

2 10-inch.....	156 inches
1 12-inch.....	113 inches
1 9-inch.....	63 inches
1 10-inch.....	78 inches
1 8-inch.....	50 inches
1 10-inch.....	78 inches
3 8-inch.....	150 inches

Total688 inches

COLD AIR RETURNS

2 18-inch.....	508 inches
1 16-inch.....	201 inches

Total709 inches
Furnace capacity, 750 inches.

ing job that I would like to have you publish, at the same time asking for quotations on it from other heating men. My reason for doing this is because of the fact that another heating man, belonging to a sheet metal contractors associa-

tion, and myself submitted bids on this job. My price was \$387 and his price was \$317. He claims he is making a profit. My cost alone was \$305.

Living room, 12'x29'; 8 windows, 2' 6"x5'; one door 3'x7'; 2 100-inch warm air runs, 156 inches.

Dining room, 12' 6"x14' 6"; 1 window, 3'x5'; 2 windows, 2'x5'; 1 12-inch warm air run, 113 inches.

Kitchen, 11'x11'; 3 windows, 2' x3'; one door, 3'x7'; 1 9-inch warm air run, 63 inches.

Bed room, 10' 6"x12' 6"; 2 windows, 2' 6"x5'; 1 10-inch warm air run, 78 inches.

Bath, 5'x8'; one window, 2'x3'; 1 8-inch warm air run, 50 inches.

Bed room, 10' 6"x12' 6"; 2 windows, 2' 6"x5'; 1 10-inch warm air run, 78 inches.

Three stacks to upstairs bed rooms, 3 8-inch warm air runs, 150 inches.

Two 18-inch cold air runs; 1 16-inch cold air run. Total, 709 inches.

Furnace capacity, 750 square inches.

Very truly yours,
Pekin Hardware Co.
A. L. Mayers.

What would your quotation on this job be? Be specific!

**Who Manufactures
"Sovereign" Furnace?**

TO *AMERICAN ARTISAN*:

Can you tell me who makes the "Sovereign" furnace?

HENRY W. PETERSON,
September 3, 1928.

**Reed Air Filter
Company Has
Folder on Clean Air**

Clean Air is the title of a folder being sent to engineers by Reed Air Filter Company, Louisville, Kentucky, which states that there is a Reed air filter for every air cleaning need. Illustrations of typical applications of Reed air filters for general ventilation, electrical ventilation, air compressors and for warm air furnaces, etc., are given.

Here's Furnace Installer Who Has Professor, Author and Minister Advertising for Him

H. F. Iler Builds So That Each Customer Becomes His Friend

By GEORGE DUERR

THE Madison Gilt Edge Company, 1128 South Park Street, Madison, Wisconsin, has changed its name to the Gilt Edge Heating Company. The incorporators of the new company are H. F. Iler, President and General Manager; E. H. Meyer and W. R. McCray. Mr. McCray and Mr. Meyer have

Thanksgiving time, and the professor was complaining that the warm air furnace would not function properly. He was having a hard time to keep warm.

Remodels Old Furnace Installation

A sketch was made of the rooms and the location of the warm air

vision for cold air was lacking on the old arrangement, consequently the system would not work. This rectified, the system has functioned perfectly ever since. The professor has nothing to fear from the cold winter nights now.

But that was only the beginning of the incident. The dwelling is so constructed that there are three heating systems required for three different families that occupy the building, one to each floor. The time came when the furnace which heated the second floor failed in its turn to perform adequately. The owner, faced with the necessity of again calling in a heating man, remembering the fair and honest treatment he had received at the hands of the Gilt Edge Heating Company, stepped to the telephone and called them again, with the result that the company sold an entire new furnace this time. In addition they have had the work of servicing these jobs since 1925.

Here is an actual demonstration of the value to a firm of so conducting its business that it makes friends with each and every customer it gets. Here is a furnace sale made whose actual selling cost was the absolute rock bottom minimum. Why, because the customer had been treated fairly on the previous occasion that he had had dealings with the warm air furnace installer that did his work. That man is a friend of the company and he is going to mention the company's name every time that occasion arises among his friends to call in a heating man. He is also a good prospect for furnace cleaning and repair work.

Undoubtedly in the course of the next few years the Gilt Edge Company will be able to point proudly to a good sized list of satisfied users of warm air heating systems as the



To Change the Views of a Minister Is an Accomplishment Worthy of the Highest Kind of Praise

been in the employ of the company since 1924.

Mr. Iler has incorporated some very progressive methods into the sales policies of his company, by means of which he is building a reputation for fair dealing, dependability, and good service that is becoming not only city wide in the Wisconsin State Capital, but includes many of the small surrounding towns.

An instance will illustrate one of the methods which is being successfully employed by Mr. Iler. Back in 1925 the editor of AMERICAN ARTISAN was visiting a friend who is a professor in the Extension Division of the University of Wisconsin, living in Madison. It was at

and cold air registers as they were then installed. This sketch was published in AMERICAN ARTISAN shortly thereafter, asking how the job would be arranged, for here was a case of wanton lack of cold air. Many replies were received. Mr. Iler, who is a subscriber to AMERICAN ARTISAN, saw the sketch and wrote in for further information about the installation, saying at the same time that he did not wish any warm air furnace user in Madison to be dissatisfied with that type of heating system if he could help it.

Calling on the professor, Mr. Iler learned who the owner of the dwelling was and got permission to rectify the system. Adequate pro-

3 new advocates of warm air heating



Three Members of the Intelligensia Who Have a Large Part in Moulding the Opinions of the Public. Mr. Iler's Gaining Their Good Will Shows that He Has the Industry's Interest at Heart

result of that original rearrangement job completed back in 1925. Not much of a job in itself, but a power in helping the company to build a reputation for good work nevertheless. And no such opportunity, regardless of how small, is to be neglected.

Advertising Value of One Job Amounts to Great Deal

In addition, the professor is coming into daily contact with other men who have similar problems to meet. Who is he going to recommend that they see to have their heating troubles taken care of? The company that gave him satisfaction, of course.

Then, too, the professor is renting now. He is a very young man. Sooner or later he, too, is going to build his own home. Who is he going to consult for the best system of heating? The answer is a foregone conclusion. Through the care exercised by Mr. Iler the professor has had the efficiency and economy of the warm air heating demonstrated to him. Mr. Iler is going to

have a shot at that new installation, when that time comes, because Mr. Iler has been building for permanent business, and he has already demonstrated that fact to the entire satisfaction of the professor, as well as the owner of the house, who is a minister and gets around among



H. P. Iler

a lot of people, and the tenant on the second floor, who is an author. There are three men and their families who are going to say nothing but good for the Gilt Edge Heating Company and the men who operate that company.

The beauty of it is that in many of the jobs taken in this manner, the contractor does not even have to face competition at all. He has so wrought in his business conduct that his recommendations are eagerly sought after and they are followed as readily with a signed contract for the work.

Competition Is Almost Nil on Such Work

Had Mr. Iler done anything less than what he did do when this opportunity to show what a warm air heating system can do when properly installed, he would not now be reaping the benefits of this potent advertising.

There is nothing unusual in this little story of an incident in the experiences of the Gilt Edge Heating Company. It does show, however, that the attitude of the company and the men back of it is all that it should be to build permanent business. It shows that these men fully appreciate the advantage to them of having everyone with whom they come in contact think well of them
(Continued on Page 109)

Commercial Oil Burning as Viewed from the Mechanical Standpoint

A General Review of the Different Types of Oil Burner and How They Operate

By HARRY F. TAPP, Technologist American Oil Burner Association

THE term commercial oil burning is used to designate application of oil burning to units used primarily for heating in commercial buildings, such as office or factory

Labor Requirement Reduced

It is practically impossible to make an accurate comparison of the cost of using oil as against the

used in commercial application, the cost of the fuel alone will be very nearly the same. Therefore, the saving can be attributed to the method of handling and utilizing the fuel. Where oil is used, the labor for stoking, cleaning fires and handling ashes is eliminated so that the labor required for attending oil fired units is only about one-fourth that required where coal is used in a hand fired plant. Even where coal is handled by the most modern equipment the oil still holds a good advantage, as it is readily moved by means of pumps which cost less than the equipment for handling coal and ashes.

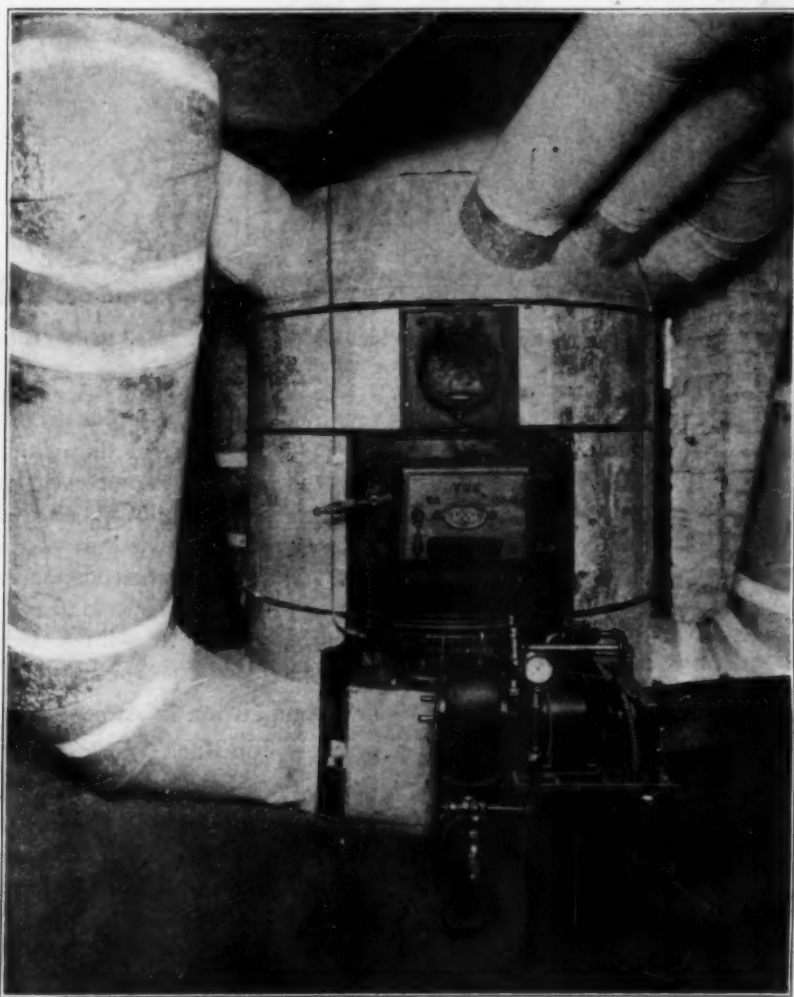
Additional Advantages

Additional advantages are obtained by the use of oil in the congested business districts due to the convenience of storage and delivery, which is accomplished quickly, quietly and efficiently. As the storage tanks are all underground, it also makes available in many instances, the space that would ordinarily be used for storage of coal.

Steam Atomizers

Atomizing burners are used practically exclusively for installations with heavy oil. There are generally three types of burners, steam atomizing burners, air atomizing burners and mechanical atomizing burners.

The steam atomizing burner has two classifications, the outside mixing and the inside mixing type. With the outside mixing type, the oil is forced through an orifice at a comparatively low pressure and just as it emerges from this orifice it is struck by a jet of steam traveling at high velocity from direction at right angles with the flow of oil. The steam jet tears the oil to pieces and injects it into the combustion chamber in a fine spray or mist.



Warm Air Heating Equipment Operating in Conjunction With an Oil Burner in the Home of a Prominent East Orange, New Jersey, Resident

buildings and large schools, hotels, theaters and apartments.

The fuel used in most commercial installations is heavy oil, designated as 14 plus or 14-16 gravity. This oil is very viscous at ordinary temperatures and requires preheating for successful atomization and clean burning.

other fuels in a general way. This is because there are so many factors that enter into this problem, such as the varied heat content of the various coals, their ash content, the ability to burn it successfully in given application and the cost of handling. With the present market prices of the grades of coal and oil

The inside mixing type has a turbulence mixing chamber between the steam orifice and the burner opening. The mixing inside the burner permits some vaporization of the lighter hydrocarbons from the heat in the steam so that the mixtures issuing from the burner opening light readily and maintain a steady burning flame. Steam burners require from 1.5 to 5 per cent of the total steam generated for atomization, 2 to 2.5 per cent being a good average and can be held with reasonable care by adjust-

ing the burners. For the best results the steam should be dry, as all moisture introduced into the combustion chamber causes a loss in efficiency.

Air Pressure Atomizers

Air atomizing burners using high pressure air are similar in design to those using steam. This type is not used as much as low air pressure air burners. Ordinarily, high pressure air burners are used where a supply of compressed air is available. Low pressure air burners use comparatively large volumes of air

under pressure of $1\frac{1}{2}$ to $2\frac{1}{2}$ pounds per square inch. Air atomizing burners are efficient, and if the blowers or compressors supplying the air are steam driven, they will require approximately $2\frac{1}{2}$ to 3 per cent of the steam generated for the motive power, but the exhaust steam is available for use in the preheaters, so that the steam consumption compares very favorably with steam atomizing burners.

Mechanical Atomizers

Mechanical atomizing burners are those which atomize the oil



Oil Burner Operating in Conjunction With a Warm Air Furnace in a Large Industrial Plant, Chicago, Illinois. This Equipment Is Thermostatically Controlled

without the aid of air or steam, although it is common practice to use air under low pressure in connection with mechanical atomizers to further atomize the fuel, but this is not necessary. The high pressure atomizer forces the oil through the small orifice under a high pressure (100-200 pounds per square inch). The oil is given a rotary motion by slots cut tangentially to the diameter of the orifice of the burner, so that the centrifugal force of the oil leaving the orifice acts as an aid in atomizing the fuel. Another type of mechanical burner is the rotary cup burner. In some burners the cup is positively driven by an electric motor or steam turbine and has a fan mounted on the same shaft so as to provide a portion of the air for combustion under pressure to aid in the atomization of the oil as it leaves the edge of the rotating cup.

Air Turbine Atomizers

Another type of rotary cup burner is where the cup is driven by an air turbine by utilizing the velocity of low pressure air from a blower. This blower is usually located at a remote point from the boiler and has sufficient capacity to supply all of the burners in the battery, although there are some burners where each burner has its own individual blower. While the first cost of mechanical atomizing burners is usually comparatively high, they have the advantage of returning all the steam used to boiler feed water. This feature makes their use very attractive for marine practice. Further advantages of this type are simplicity and economical operation with uniform combustion regulation.

For some burners, the air for combustion is partially supplied from a blower used to aid in the atomization of the fuel, the balance being induced by the natural draft through a regulated damper. With other burners there is an air register which admits the air by natural draft through adjustable vanes, usually giving a rotating motion to the air as it enters the combustion chamber about the atomizer. Some burners are installed through a

small port in the firing door admitting a small amount of air about the burner tip and the balance of the air is admitted through openings arranged in the refractory hearth, when the fire brick is laid. These openings are usually arranged so as to conform to the shape of the flame from the burner so that the air comes in contact with the burning fuel and is not permitted to escape unused through the unit passage and up the smoke flue. Some installations are provided with means for providing forced draft by connecting the air register with a duct from the blower.

Regulation of Draft

While slightly less draft is required with oil burning equipment than is necessary where coal is used as a fuel on account of the draft loss through the unit that makes it advisable to follow the recommendations of the manufacturers in designing the chimney for use with oil fuel. Inasmuch as many oil installations are made to replace coal and the installation is not originally designed for oil, it is necessary to regulate the draft by means of dampers, which are connected to the control operating devices which operate from the steam pressure to vary the oil and air to meet the load fluctuations.

There are many factors that should be taken into consideration when selecting burners for application to a particular installation. A good burner should be flexible in its adjustments; it should be easily adjusted over a considerable capacity range, and its design should permit the shaping of the resulting flame from the burner so that the flame will fit the combustion chamber closely. A flame that does not properly fit the shape of the combustion chamber permits air to escape around the flame without properly mixing with the fuel and is, therefore, responsible for inefficient combustion results. If possible, it is best to use a single burner, rather than burners in multiple, wherever the shape of the flame can be adjusted to meet the combustion chamber requirements and the burner has sufficient ca-

capacity and flexibility to meet the variable loads imposed on the unit. Single burners ordinarily will satisfactorily meet the requirements for buildings such as schools, theaters, churches and apartments. For large office and commercial buildings the boilers are usually of such size as to require two or more burners per unit, in order to obtain the required flame application and flexibility of control.

Importance of Storage Tank Location

Regardless of the type of burner used, the installation of the oil system which includes the tank, heaters, strainers, pumps and piping is important.

Tanks should be installed in accordance with local rules when the storage of oil fuel, but in absence of local regulations suggested by the Underwriters Laboratories be followed. The oil heaters are usually steam coils, although in some cases electric heaters are used, especially for starting the burners from a cold condition.

A small heater is usually installed in the storage tank around the suction inlet. This heater is used to reduce the viscosity of the oil so that it can be readily pumped. Some jurisdictions require that this heating be done by hot water only.

The oil is delivered from the pump to the supply line for the burners and is passed through larger heaters where the temperature is raised to a point that insures the viscosity being low enough for atomization. This temperature is variable for different oils, but will usually be between 150 degrees and 200 degrees Fahrenheit.

Care should be taken to keep the temperature below the flash point of the oil. This is usually done by means of automatic temperature regulators which open and close the steam supply valve to the heater coils. From the heaters the oil is delivered as directly as possible to the burners for atomization. As all fuel oils contain a certain amount of foreign matter in suspension, it is important that the oil line have large strainers with sufficient screen area to permit their being used for

some period of time without the screens becoming clogged and preventing the flow of oil. The best practice calls for strainers in duplicate on the suction side of the pump and additional strainers on the delivery side of the pump, known as discharge oil strainers.

For small commercial installations the oil pumps are usually of the rotary type and are driven by electric motors and are sometimes incorporated into the design of the burner, but for the large installations, the steam operated piston type pump is commonly used. It is recommended that pumps and heaters be installed in duplicate. This is required in many jurisdictions where the heating service is used in connection with the fire protection apparatus.

Continuous Circulation System

With the various types of burners that are being used, there has been developed several systems which differ in construction. This difference is affected by the size and location of the installation which affects piping, pumping and tank arrangements. Probably the most widely used oil system at the present time is the continuous circulation system.

It is especially important to use this when burning the heavy fuel oils as without its use there is the possibility of choking up of the line and the attendant necessity of cleaning valves and burners at frequent intervals. In the continuous circulation system the oil is pumped from the tank by the oil pump and is delivered to the burner supply line; any excess oil is by-passed to a regulating valve back to the tank or to the suction side of the oil pump. In this way the proper atomizing temperature of the oil is maintained and the choking or accumulation of sediment in the supply line is avoided. In the layout of the piping it is important to keep the oily supply pipe below the level of the burner to prevent the formation of vapor pockets which are liable to shut off the supply fuel through the burner.

Heat Required Negligible for Water Evaporation in Average Home

*Amount of Coal Burned for Humidity
Only 6 Pounds Per 24 Hours*

By PLATTE OVERTON

MY attention was called to a recent article in your paper relative to the amount of heat required to evaporate water for humidification. A certain amount of heat is necessary, it is true, but in the average home of five to seven rooms the B. t. u.'s required would be practically negligible.

To make a rough calculation of a house 24 by 30, full two stories high, with two air changes per hour, we have 12,000 cubic feet times two, divided by 60, or 400 cubic feet per minute of air supplied.

Seventy degrees air with a relative humidity of 40 per cent contains 3.192 grains of moisture per cubic foot, and we have 400 times 3.192 equal to 1,276 grains of moisture per minute.

One pound of water contains 7,000 grains; 1,276 divided by 7,000 is equal to .18 pound of water. Basing our requirements on a 100 per cent recirculated job where the air is being recirculated over and over, we find that only one-fifth of this .18 pound of water is lost through the process of recirculation or given up to the occupants, furniture, leakage, and condensation on cold surfaces such as glass.

One-fifth of .18 is equal to .036 pound of water required per minute; 1,440 minutes in 24 hours equals 1,440 times .036, equals 51.84 pounds of water or 6.48 gallons.

It requires 858.69 B. t. u. to evaporate one pound of water, or 51.84 times 858.69 divided by 24 or 1,855 B. t. u. per hour, or about six pounds of coal per 24 hours or 900 pounds for the heating season.

It should be noted that this calculation is based on the peak load for the entire heating season, and the average winter would cut this amount of coal in half. Such items

as cooking and laundrying tend to add humidity to the air and have not been considered.

The object of this letter is to show how foolish it is to condemn humidity because it costs money; 40 per cent relative humidity with its many benefits will far offset the cost of 400 or 500 pounds of coal even at \$20.00 per ton.

C. H. Carpenter in Sheet Metal and Hardware Business at Highmore, South Dakota

C. H. Carpenter, Highmore, South Dakota, has entered the sheet metal, hardware and plumbing business in that city, and is interested in securing catalogues from manufacturers of sheet metal products.

He is well known in this territory and should have no trouble in establishing himself in the sheet metal business.

PROFESSOR ADVERTISES FURNACES

(Concluded from Page 105)

and the work they do; it shows that they have a definite sales policy which they are earnestly endeavoring to adhere to; it shows that they are on their toes, using every legitimate means of getting business. And that's about all there is to the building of any business.

It is needless to say that the minister and the professor were pretty well discouraged with warm air furnaces and warm air heating in general. Fortunately for the warm air heating industry Mr. Iler got to them with the true gospel of the Standard Code installation before they had transformed their thoughts into actions. Now they are all firm believers in warm air heating, because education of the right kind has convinced them.

Modern Furnace Salesmanship Requires Appeal to the Reasonable

Furnace Men Must "Hit the Ball" in Making Sales These Days

By GEORGE T. SISLER*

HEATING and ventilating is, in its true conception, without doubt or just cause for dispute, an art, and in this capacity art becomes a great factor in bringing comfort and health to humanity.

This being true, the man of ability can find for himself a pastime as well as a business.

How often have I been asked the question by many, many housewives and husbands, "Why isn't it possible for us to make our basement as clean as our kitchens or living rooms?"

And here is where warm air heating becomes an art.

Some time ago I was called into the home of a doctor living in a town of a few thousand population, to look over his heating system. He had in his basement a unit that had given what he thought was satisfaction for over 25 years, and this job was ready for replacement.

There had been several heating contractors there before me who had left estimates to tear out the old job (unit) and replace it with another on the same installation.

My first view was not that I might place my unit in his basement, but to the doctor's view on sanitation.

He stated that he was proud to take any friend any place in his home (and he has a beautiful home) but his furnace room.

I carefully checked over his entire residence, using the Standard Code as my guide and rule, *emphasizing that the method of assurance we had today was one of science, as well as his, in determining facts.*

The gentleman became very interested, so that he requested sev-

eral patients to wait until I had finished (and I *did not* talk too much).

The result—that home today has a modern warm air heating system, with automatic fan, air filter, humidity fans, thermostatic control, and the good doctor *swears* he has the best job in his state.

Be this as it may, the fact remains that his basement is now a place of beauty—comfort is everywhere.

Again, a banker in one of our Ohio cities, whose beautiful home was heated during mild days partially satisfactory and in zero weather more than one-third of it had to be closed up, today enjoys comfort in every nook and corner, with cleanliness everywhere, because of the possibilities that are at our command.

Many instances could be quoted to show more fully, but space will not permit.

Converting the basement of a home from a dusty, dirty mass of unsightly heating units and scraggy, crooked pipes, with streamers of paper flapping and dusting one generously with a supply of ill-smelling dust, into a place of cleanliness and beauty, where even the finest evening dress can be worn without fear, or the top hat, ready for an evening rehearsal, can be worn; I say doing this is an art, and is within the scope of your ability and mine.

No longer is the bathroom a place of smells and roaches, for modernity demands that one's ablutions be surrounded with all that pertains to cleanliness.

The noisy (giraffe) ill-looking, high closet has given way to noiseless china tank and bowl. The scaly tin tub with its paint peeling off, which reminded one of lost skin instead of a clean body, is now a relic

and has given place to a thing of beauty in the form of a built-in miniature pool.

But of sheet metal and furnaces, where and *how* is your product?

Yes, I know you have made great progress, *but remember, you once were first*, now you are trailing. Why?

In the words of the immortal Apostle Paul, "Ye did run well, but what hindered you?"

My friends, this one thing I know, and am persuaded, that there is nothing more beneficial to humanity than *comfort*, and that nothing is more comfortable than to be at peace in one's own home, surrounded with loved ones, and knowing that the artisans employed have given us of their best, so that one might have the bliss attending therefrom.

Therefore, *it is up to us to lift our vocation out of its present state into the place of its calling and keep it where it belongs.*

Agricola Baseball Team Tops the Industrial League

With a lead of three games the Agricola Furnace company team, Gadsden, Alabama, is setting the pace in the Industrial league as the end of the season draws near. The Agricola team has been hotly pursued by the Sauquoit Mill nine all through the season, but the furnace outfit has had the best of the argument so far.

Present standing of the teams, including all games up until Monday night, follows:

	W.	L.	Pct.
Agricola	13	2	.867
Sauquoit	9	4	.692
Steel Plant	5	4	.556
Wetter	6	6	.500
Stringer	5	7	.417

*May-Fieberger Furnace Company, Newark, Ohio.

"Anaconda Copper sells itself ... thanks to its advertising," says

the President of Philip Christmann & Sons
Buffalo, New York



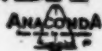
Philip Christmann & Sons, roofers and sheet metal workers, are widely known throughout Western New York. The success they have attained is due to their extensive experience and the fact that they have always done quality work and used quality materials. They know the value of national advertising. If you are interested in knowing why they prefer Anaconda, read the following statement by Philip Christmann:

"I don't have to sell Anaconda Copper—it sells itself—thanks to its advertising. My customers are familiar with it, and that is a big help. Anaconda advertising shows them why Anaconda Copper is a real investment. Copper may cost a little more at first, but in the long run it saves them money by doing away with repairs and replacements. They have learned that copper can't rust. That's where the economy comes in. I find few customers ever argue against Anaconda Copper."

Anaconda Copper is manufactured with the highest metallurgical skill by the world's largest and most experienced producers of Copper, Brass and Bronze. Its uniform quality and workability are due to the scrupulous care attending every stage of manufacture, from mine to finished product.

Stocks of trade-marked Sheets, Rolls and Economy Strips are maintained by leading distributors, assuring prompt deliveries in all parts of the United States.

Sheet Metal Work of ANACONDA COPPER



The Christmann firm installed the sheet metal on the new Peace Bridge at Buffalo, using Anaconda Copper exclusively.



This well-equipped shop is responsible for many a fine copper job.

THE AMERICAN BRASS COMPANY, GENERAL OFFICES: WATERBURY, CONNECTICUT

When writing mention AMERICAN ARTISAN—Thank you!

Master Sheet Metal Contractors' Association of Milwaukee, Wisconsin Hold Monthly Meeting

The Master Sheet Metal Contractors' Association of Milwaukee held their meeting in Milwaukee, September 5.

Minutes of the previous meeting were read and approved.

Inasmuch as the state association has been requested to remit for the 100 Encyclopedias subscribed for at the state convention, it was recommended that the secretary send a letter to all of our members urging them to remit for the Encyclopedias in full at the earliest possible moment.

Picnic committee reported that a nice time was had by all, but the attendance was far from what was expected. The treasurer reported a deficit of \$11.44, for which motion was made and carried that this deficit be paid out of the treasury. In this connection it was reported by one of our members that the wholesale houses suggested that the next year's picnic be run by them and invitations sent to all sheet metal men in the city. However, no definite program has been made and it was suggested that we take this matter up with them next May.

The attendance prize was taken away by Henry Pluckhan.

T. W. Yocum Becomes Managing Director Oil Heating Institute

Trell W. Yocum, one of the executives of the American Petroleum Institute, and well known in both the oil and the publishing fields, has been elected managing director of the Oil Heating Institute and the American Oil Burner Association. The announcement was made recently by Leod D. Becker, who will retire October 1 after six years' service.

Mr. Yocum was born in Mechanicsburg, Ohio, in 1893, and graduated from Ohio State University in 1914. After leaving college he engaged in newspaper and magazine work in Cleveland. When the United States entered the war,

he joined the first Officers' Training Camp at Fort Benjamin Harrison, but shortly after was incapacitated for military service by temporary physical disability following a major operation. From 1917 to 1919 he was a member of the staff of Herbert Hoover. From 1919 to 1924 he was with the Crowell Publishing Company, first as managing editor of *Farm and Fireside*, and later as managing editor of *Collier's*. In 1924 he became secretary, and later director, of the Committee on Public Relations of



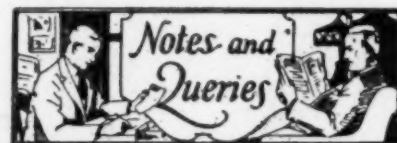
Trell W. Yocum

the American Petroleum Institute, a position he holds at the present time. He resides at Indian Head Point, Riverside, Connecticut.

In Mr. Yocum, the directors have chosen a man ideally fitted for the increasing responsibilities of the position. He is a seasoned association executive. He will bring to the oil burner industry a thorough familiarity with the oil business, and his wide acquaintance with the leaders of the oil industry will be of material benefit to both the oil and oil burner industries. His selection emphasizes the growing importance of oil heating and the readiness for co-operation on the part of the oil industry which was shown last December by the endorsement of oil heating on the part of the Directors of the American Petroleum Institute.

"The present work and future growth of the American Oil Burner

Association and the Oil Heating Institute is of importance to the industry," says Mr. Becker, "and my faith in the future of oil heating is stronger than ever. This year's sales are averaging close to 40 per cent greater than last year. There was never such confidence and desire for oil heat on the part of home and building owners as now exists." Mr. Becker continues as a member of the Board of the Oil Heating Institute and the American Oil Burner Association.



Anemometer

From Western Steel Products Company, Duluth, Minnesota.

Can you tell us who makes an anemometer?

Ans.—E. Vernon Hill Company, 64 West Randolph Street, Chicago.

"Fabrikated" Cold Air Faces

From American Foundry and Furnace Company, Bloomington, Illinois.

Can you tell me the name of the manufacturer making "Fabrikated" cold air faces?

Ans.—Independent Register and Manufacturing Company, 3471 East 93rd Street, Cleveland, Ohio.

Copper and Brass Screw Caps.

From B. J. Malerich, Arrowhead Sheet Metal Co., 315 Fourth Avenue, International Falls, Minn.

Kindly advise me where I can purchase 6, 7 and 8 inch screw caps made of copper and brass?

Ans.—Merchant and Evans Company, Philadelphia, Pennsylvania, and Belson Manufacturing Company, 800 Sibley Street, Chicago.

Electric Spot Welder.

From B. T. Nickel, Mountain Lake, Minnesota.

Please tell me who makes an electric spot welding machine.

Ans.—Jos. T. Ryerson and Son, 2558 West 16th Street, Chicago.

Circular Saw for Furnace Men.

From L. N. Wagner, 1846 Jackson Street, Dubuque, Iowa.

Can you tell me who makes a small circular electrically driven saw which is used by furnace men?

Ans.—Wodack Electric Tool Corporation, 4627 West Huron Street, Chicago.

Industrial leaders use

Prest-O-Lite
DISSOLVED ACETYLENE




Because it is a product of Union Carbide and Carbon Corporation, the leader in the oxy-acetylene industry.

Because it has been a uniform quality product for 23 years.

Because it is obtainable everywhere through 33 producing plants and 101 warehouses.

THE PREST-O-LITE COMPANY, INC.

Unit of Union Carbide  and Carbon Corporation

General Offices: Carbide and Carbon Building
30 East 42d St., New York

33 PLANTS 101 WAREHOUSES

Mention AMERICAN ARTISAN in your reply—Thank you!

Steel Prices Hold—Needs Large

Large Buying of Non-Ferrous Metals Supported by Good Consumption—Prices Firm

ONE of the most important recent developments of significance for the iron and steel industry was the announcement of the American Railway association edict against the use of wooden freight cars after 1930. This edict, if it means anything at all, means that the roads must replace probably 300,000 cars of wooden underframe construction in the next few years.

August's record steel tonnage appears safely in process of digestion and sources of demand, far from being dried up, are providing specifications whose proportions thus far in the month promise to carry September as well as to a new high production level.

To a mild extent, business has been and is being driven in by the threat of higher fourth quarter prices, but stocking of the character known prior to 1921 is negligible.

Many consumers, notably of sheets, have specified all their third quarter contract material and some have purchased supplementally at current prices, but substantially all this steel is earmarked for definite consumption.

There has been some anticipation, but little speculation. In these days of high handling costs and attractive interest rates, it takes more than the threat of a \$2 per ton advance to send surplus funds into stockpiles.

Another week of good business is recorded in the nonferrous metal markets.

Buying gives every evidence of being backed by excellent consumption. Nearly all buying is for early shipment. Prices on all metals except tin, have been strong with no actual change.

Higher prices on lead and copper are being discussed but in the latter metal powerful sentiment for keeping the price where it is exists.

Copper

Domestic buying for October was large the past week and some producers are out of the market for this position. Some demand is met for November delivery. Users are well covered for October. Little September copper is available. The situation is so strong that a rise in price would not be surprising.

Lead

Buying has continued active with business well divided between September and October.

The market has been placed in a strong position by continued buying. Export business has been good. Prices are unchanged but the trade would not be surprised to see higher prices than 6.40c. New York, and 6.25c, East St. Louis, now quoted.

Tin

Buying by consumers fell off for several days and prices slumped, especially on spot. Futures have shown a little more firmness.

The price tendency has been in the face of better statistics last month than had been expected. The visible supply went up only 434 tons whereas a big increase had been expected earlier.

On the other hand the total visible now is 4,000 tons larger than a year ago, and there is some fear of further accumulation before the end of the year.

Zinc

Prime western is moderately active, mostly on small lots sold from day to day. The price remains unchanged at 6.25c, which has ruled since early in August. At the end of August stocks showed an increase of 2,206 tons compared with July, the increase being due to the fact that output exceeded shipments.

Pig Iron

Large tonnage sales of pig iron at Pittsburgh are lacking and prices generally are unchanged, with a

number of sellers continuing to name the recently advanced figures as minimum.

Some users are covered for a short time ahead, but restricted stocks in certain instances are providing a fairly steady run of small lot business. Most sellers continue to name \$17, base, valley, as minimum for No. 2 foundry iron, at which price sales have been made, but reports still are heard of transactions at \$16.75.

The falling off in pig iron bookings at Chicago as a result of the recent advance in the Chicago furnace price is less marked than was expected. Most buyers estimated their needs conservatively before the advance, and have been coming into the market. Others failed to cover and now find supplies short. Merchant stocks have been reduced to the lowest point in many months. Little St. Louis district iron is coming into the territory just west of Chicago. Sales of silvery iron during the week totaled more than 700 tons, sellers obtaining the full schedule. The base price of \$18, Chicago furnace, is holding steadily for No. 2 foundry and malleable.

Activity still is noted in pig iron buying at Birmingham, though small lots predominate.

Furnace interests are meeting all requests for steady delivery, and surplus stock is being reduced slowly. The price is firm at \$16.25, base, Birmingham, with indications of another advance.

Old Metals

Wholesale quotations in the Chicago district, which should be considered as nominal, are as follows: Old steel axles, \$16.25 to \$16.50; old iron axles, \$24.00 to \$24.50; No. 1 wrought iron, \$11.50 to \$12.00; No. 1 cast, \$13.50 to \$14.00; all per net tons. Prices on non-ferrous metals are quoted as follows, per pound; Light copper, 10½ cents; zinc, 3¼ cents; cast aluminum, 11¼ cents.



Homeward Bound—

But "home" to what? A little cabin built of rough-hewn timbers through which the melting snows slowly seeped in the winter—a little cabin that might be demolished in seconds by a forest fire in the summer.

"Home" never meant comfort or safety to these old pioneers of what is now the "West that Inland Serves".

But today—in these very same regions—buildings of every description are covered with INLAND COPPER ALLOY STEEL SHEETS. Here is a material which offers complete protection against fire and lightning—a material which is unsurpassed in resisting rust and corrosion.

Contributing Member—Sheet Steel Trade Extension Committee

BRANCH
OFFICES
KANSAS CITY
MILWAUKEE
ST. LOUIS
ST. PAUL

INLAND STEEL COMPANY
38 South Dearborn Street
Chicago

WORKS
INDIANA HARBOR
INDIANA
CHICAGO HEIGHTS
ILLINOIS
MILWAUKEE
WISCONSIN

SHEETS ~ BARS ~ PLATES ~ SHAPES ~ RAILS ~ TRACK ACCESSORIES ~ RIVETS ~ BILLETS

Mention AMERICAN ARTISAN in your reply—Thank you!

Chicago Warehouse Metal and Furnace Supply Prices

AMERICAN ARTISAN is the only publication containing Western Metal, Furnace Supply and Hardware prices corrected weekly

METALS

FIG IRON

Chicago Fdy., No. 2	\$18 00
Southern Fdy. No. 2	22 26
ake Superior Charcoal	37 00
Malleable	18 00

FIRST QUALITY BRIGHT TIN PLATES

IC 20x28 112 sheets	\$25 10
IX 20x28	29 60
IXX 20x28 66 sheets	16 20
IXXX 20x28	17 55
IXXXX 20x28	18 95

TERNE PLATES

IC 20x28, 40-lb. 112 sheets	\$25 00
IX 20x28, 40-lb. 112 sheets	27 75
IC 20x28, 25-lb. 112 sheets	21 15
IX 20x28, 25-lb. 112 sheets	23 80
IC 20x28, 20-lb. 112 sheets	19 55
IX 20x28, 20-lb. 112 sheets	22 05
IC 20x28, 15-lb. 112 sheets	18 05

"ARMCO" INGOT IRON PLATES

No. 8 ga. up to and including

1/4 in.—100 lbs. \$4 55

COKE PLATES

Cokes, 80 lbs., base, 20x28	\$13 60
Cokes, 90 lbs., base, 20x28	13 50
Cokes, 100 lbs., base, 20x28	14 00
Cokes, 107 lbs., base, IC	
20x28	14 80
Cokes, 135 lbs., base, IX	
20x28	16 40
Cokes, 155 lbs., base, 56 sheets	9 20
Cokes, 175 lbs., base, 56 sheets	10 05
Cokes, 195 lbs., base, 56 sheets	10 90

BLUE ANNEALED SHEETS

Base 10 ga. per 100 lbs.	\$3 35
"Armco" 10 ga. per 100 lbs.	4 00

ONE PASS COLD ROLLED BLACK

No. 18-20. per 100 lbs.	\$3 60
No. 22. per 100 lbs.	3 75
No. 24. per 100 lbs.	3 80
No. 26. per 100 lbs.	3 90
No. 27. per 100 lbs.	3 95
No. 28. per 100 lbs.	4 05
No. 29. per 100 lbs.	4 20
No. 30. per 100 lbs.	4 30

"ARMCO" GALVANIZED

"Armco" 24. per 100 lbs.	\$6 15
--------------------------	--------

GALVANIZED

No. 16. per 100 lbs.	\$4 15
No. 18. per 100 lbs.	4 30
No. 20. per 100 lbs.	4 45
No. 22. per 100 lbs.	4 50
No. 24. per 100 lbs.	4 65
No. 26. per 100 lbs.	4 90
No. 27. per 100 lbs.	5 00
No. 28. per 100 lbs.	5 15
No. 30. per 100 lbs.	5 55

BAR SOLDER

Warranted 50-50. per 100 lbs.	\$30 75
Commercial 45-55. per 100 lbs.	27 25
Plumbers. per 100 lbs.	24 25

ZINC

In Slabs	\$ 8 50
----------	---------

SHEET ZINC

Cask Lots (600 lbs.)	\$11 25
Sheet Lots	12 25

BRASS

Sheets, Chicago Base	19 1/2c
Mill base	18 1/2c
Tubing, brazed base	27 1/2c
Wire, base	18 1/2c
Rods, base	16 1/2c

COPPER

Sheets, Chicago base	24 1/2c
Mill base	23 1/2c
Tubing, seamless base	26 1/2c
Wire, No. 9, B & S Ga.	19 1/2c
Wire, No. 10, B & S Ga.	19 1/2c
Wire, No. 11, B & S Ga.	20 1/2c
Wire, No. 3, B & S Ga. and heavier	24 1/2c

LEAD

American Pig	\$7 20
Bar	8 25

TIN

Pig Tin. per 100 lbs.	\$55 75
Bar Tin. per 100 lbs.	56 75

HARDWARE, SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES.

ASBESTOS

Paper up to 1/16. 6c per lb.	
Roll board 2/32 to 1/4. 6c per lb.	
Mill board 2/32 to 1/4. 6c per lb.	
Corrugated Paper (250 sq. ft. to roll)	\$6 00 per roll

BRUSHES

Furnace Pipe Cleaning Bristle, with handle, each	\$0 75
--	--------

Flue Cleaning

Steel only, each	1 25
------------------	------

BURRS

Copper Burrs only	40-2 1/4c
-------------------	-----------

CEMENT, FURNACE

American Seal, 5-lb. cans, net	\$ 45
American Seal, 10-lb. cans, net	35
American Seal, 25-lb. cans, net	2 25
Pecora. per 100 lbs.	7 50

CHIMNEY TOPS

Adams' Revolving	
4 in. 21 lbs. Price Doz.	\$11 00
6 in. 24 lbs.	11 50
7 in. 30 lbs.	12 50
8 in. 33 lbs.	15 00
9 in. 51 lbs.	16 50
10 in. 56 lbs.	18 00
12 in. 66 lbs.	22 00
14 in. 110 lbs.	36 00

CLINKER TONGS

Each	\$1 50
------	--------

CLIPS

Damper	
No-Rivet Steel, with tail pieces, per gross	\$9 50
Rivet Steel, with tail pieces, per gross	7 50
Tail pieces, per gross	1 40

COFFERS—Soldering

Pointed Roofing	
3 lb. and heavier. per lb.	40c
2 1/2 lb. per lb.	45c
2 lb. per lb.	45c
1 1/2 lb. per lb.	55c
1 lb. per lb.	60c

CORNICE BRACKES

Chicago Steel Bending	
Nos. 1 to 6B.	Net

CUT-OFFS

Gal., plain, round or cor. rd.	
26 gauge	30c
28 gauge	35c

DAMPERS

"Yankee" Hot Air	
7 inch, each 20c, doz.	\$1 60
8 inch, each 25c, doz.	2 20
9 inch, each 30c, doz.	3 60
10 inch, each 32c, doz.	3 80

Smoke Pipe

7 inch, doz.	\$1 60
8 inch, doz.	2 20
9 inch, doz.	3 00
10 inch, doz.	3 75
12 inch, doz.	4 50

ADAMS No. 1 CHECK

Check and Collar Complete	
8 inch, each	2 00
9 inch, each	2 25

End Check Only

8 inch, each	1 60
9 inch, each	1 85

Collar Only

8 inch, each	50
9 inch, each	65

No. 2 CHECK

8 inch, each	1 00
9 inch, each	1 00

10% Disc. on Adams No. 1 and No. 2 Check

Diamond Smoke Pipe	
7 inch, doz.	\$ 3 00
8 inch, doz.	3 20
9 inch, doz.	4 00
10 inch, doz.	

Adams' Sheet Metal

7 inch, doz.	\$ 1 60
8 inch, doz.	2 20
9 inch, doz.	2 60
10 inch, doz.	2 80
12 inch, doz.	3 50
14 inch, doz.	5 00

EAVES TROUGH

Galv. Crimpedge, crated 75 & 10%	
Zinc, "Barnes"	60%

ELBOWS

Conductor Pipe	
Galv. plain or corrugated, round flat Crimp.	
28 Gauge	60%
26 Gauge	45%
24 Gauge	15%

Galv. & Terne Steel

Plain Rd. and Rd. Corr.:	
28 Ga.	60%
26 Ga.	45%
24 Ga.	15%

Square Corrugated

No. 28 Gauge	50%
26 Gauge	35%

Portico Elbows

Standard Gauge Conductor Pipe, plain or corrugated.	
Not nested	70 & 5%
Nested Solid	70 & 5%

Sq. Corr., A. & B. & Octagon

28 Ga.	50%
26 Ga.	35%

Portico

1", 1 1/4", 1 1/2".	45%
---------------------	-----

Copper

16 oz., all designs.	50%
----------------------	-----

Zinc—

All styles	60%
------------	-----

ELBOWS—Stove Pipe

1-piece Corrugated, Uniform Blue "Milcor" No. 28 Gauge. Doz.	
5-inch	\$1 05
6-inch	1 20
7-inch	1 75

Special Corrugated

6-inch	\$1 00
7-inch	1 60

Adjustable—Uniform Blue

"Milcor" No. 28 Gauge. Uniform Blue.	
5-inch	\$1 65
6-inch	1 75
7-inch	2 10

WOOD FACES—50% off list.

FENCE

736-6-12 1/4% (100 rods)	\$23 68
1948-6-14 1/4% (100 rods)	43 62

FILES AND RASPS

Heller's (American)	50-10%
American	60-10%
Arcade	50%
Black Diamond	50%
Eagle	50%
Great Western	50%
Kearney & Foot	50%
McClellan	50%
Nicholson	50%
Almonds	60%

FIRE POTS

Geo. W. Diener Mfg. Co.	2a.
No. 62 Gasoline Torch, 1 qt.	\$ 5 15
No. 0250, Kerosene, or Gasoline Torch, 1 qt.	6 50
No. 10 Tinner's Furn. Square tank, 1 gal.	11 20
No. 15 Tinner's Furn. Round tank, 1 gal.	10 70
No. 21 Gas Soldering Furnace	8 60
No. 110 Automatic Gas Soldering Furnace	10 50

Quick Meal Stove Co.

Vesuvius, F. O. B. St. Louis	30%
(Extra Disc. for large quantities.)	

GALVANIZED WARE

Pails (Galv. after made), 10-qt.	\$2 00
Tubs (Galv. after made).	
No. 1	5 75
No. 2	6 50

GLASS

Single Strength, A, 52-in. brackets	38%
Single Strength, 9, 34 to 40-in. brackets	38%
Single Strength, A, all other brackets	38%
Double Strength, A, all sizes	39-5%

HANGERS

Conductor Pipe	
Milcor Perfection Wire	28%
Milcor Triplex Wire	10%

Eaves Trough

Milcor Steel (galv. after forming) List	plus 13 1/4%
Milcor Selsack E. T. Wire, List	plus 50%

HOOKS

Conductor	
"Direct Drive" Wrought Iron for wood or brick	15%

HUMIDIFIERS

"Front-Range," Automatic	
In single lots	50%
In lots of 10 or more	50-5%
In lots of 25 or more	50-10%
Vapor pans, etc., each	50%

LIFTERS

Stove Cover	
Coppered	per gro. \$6 00
Alaska	per gro. 4 75

MALLETS

Tinner's Hickory	per doz. \$2 25
------------------	-----------------

MITRES

Galvanized steel mitres,	
28 Ga.	70
26 Ga.	60-20

NAILS

Cut Steel	\$4 35
Cut Iron	4 35

Wire

Common	\$3 10
Cement Coated	3 10

(Continued on Page 118)

Whitney Lever Punches

Widest known—Most universally used



Skylight Punch

**NEW SKYLIGHT
CLOSE CORNER
FLANGE PUNCH**

Every Sheet Metal Worker Needs One.

Weights Only 10 Lbs.

1-2 Inch Opening Above Die Top.



Skylight Punch

**EASIEST OPERATED
QUICKEST CHANGED
FREQUENTLY PAY FOR THEMSELVES
ON FIRST JOB**

Over 40,000 In Use



Channel Iron Punch

MADE IN 8 SIZES AND TYPES

OTHERS FOLLOWING



No. 2 Punch

ASK YOUR JOBBER

or

Write us, for circulars and prices.



No. 4 Tinner's Punch

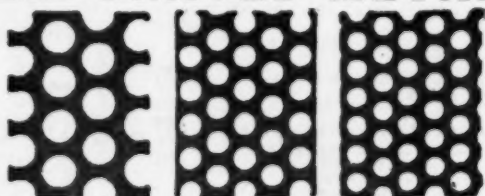
**W. A. Whitney
Mfg. Co.**

**715 Park Ave.,
ROCKFORD, ILL.**



No. 8 Punch

PERFORATED METALS



All Sizes and Shapes of Holes
In Steel, Zinc, Brass, Copper, Tinplate, etc.
For All Screening, Ventilating and Draining
EVERYTHING IN PERFORATED METAL

THE HARRINGTON & KING PERFORATING CO.
5649 FILLMORE ST.—CHICAGO, ILL., U. S. A.
NEW YORK OFFICE: 114 LIBERTY ST.

-B.B.- LINE OF SHEET METAL SUPPLIES

B.B. CONDUCTOR HOOKS AND GUTTER HANGERS
"SHUR-LOCK" CONDUCTOR PIPE
OCTAGON AND POLYGON CONDUCTOR PIPE
"E-Z FIT" EAVES TROUGH
"QUAKER CITY" MITRES, ENDS, CAPS AND
OUTLETS
EAVE TROUGH STRAP AND ROD HANGERS
ORNAMENTAL CONDUCTOR STRAPS AND ENDS

YOUR JOBBER CARRIES THEM IN
STOCK FOR PROMPT SHIPMENT

Manufactured by

BERGER BROS. CO.

229 to 237 ARCH STREET

PHILADELPHIA

Round
Corrugated



Plain Round



NEVER MADE WITHOUT THIS

TRADE **F. Dieckmann** MARK

Quality and Service Made 'em Famous

Made of one piece of heavy gauge material,
in all styles and angles from 10 to 90
degrees, of 24, 26, 28 ga. ternes, then
galvanized after formation.

DIECKMANN Elbows and Shoes

*are the standard of the market
and always give satisfaction*

Send for new catalogue 26 showing complete line

The Ferdinand Dieckmann Co.

P. O. Station B, Cincinnati, O.

Square
Corrugated
Style A



Square
Corrugated
Style B



Not made lighter than
28 ga. or 16 oz. copper

ADVERTISERS' INDEX

The dash (—) indicates that the advertisement runs on a regular schedule but does not appear in this issue.

A		L	
Aeolus-Dickinson Co.	121	Lamneck & Co., W. E.	—
Agricola Furnace Co.	—	Lamson & Sessions Co., The.	90
Akrat Ventilators, Inc.	124	Langenberg Mfg. Co.	—
Amercan Brass Co.	111	La Salle Machine Works.	—
American Foundry & Furnace Co.	—	Lennox Furnace Co.	—
American Furnace Co.	91	Linde Air Products Co.	—
Armco Distributors Assn. of America	—	Lupton's Sons Co., David.	—
American Steel & Wire Co.	—	M	
American Wood Register Co.	—	Marshalltown Mfg. Co.	—
Arex Co.	124	May-Feibeger Co.	—
Auer Register Co.	92	McIlvaine Burner Corp.	125
Automatic Humidifier Co.	—	Meyer & Bro. Co., F.	90
B		Meyer Furnace Co., The.	87
Barnes Metal Products Co.	—	Milwaukee Corr. Co., Back Cover	—
Beh & Co.	91	Moncrief Furnace Co.	—
Berger Bros. Co.	117	Mt. Vernon Furn. & Mfg. Co.	—
B. & F. Mfg. Co.	90	Mueller Furnace Co., L. J.	—
Berger Co., L. D.	—	N	
Bertsch & Co.	119	National Heating Service.	—
Braden Mfg. Co.	—	National Regulator Co.	—
Brillion Furnace Co.	—	New Jersey Zinc Sales Co., The	—
Burgess Soldering Furnace Co.	—	O	
Burton Co., W. J.	—	Osborn Co., The J. M. & L. A.	—
C		Oxweld Acetylene Co.	—
Cleveland Castings Pattern Co.	90	P	
Colburn Heater Co.	84	Parker, Kalon Corp.	—
Chicago Metal Mfg. Co.	—	Peck, Stow & Wilcox.	—
Cennors Paint Co., Wm.	—	Peck, H. E.	124
Copper & Brass Research Association	—	Prest-O-Lite Co., Inc.	113
D		Q	
Dieckmann Co., Ferdinand.	117	Quick Meal Stove Co.	119
Diener Mfg. Co., Geo. W.	121	Quincy Pattern Co.	90
Dreis & Krump Mfg. Co.	121	R	
E		Richardson & Boynton Co.	89
Eiermann, Wm.	119	Robinson Co., A. H., Front Cover	—
F		Rybolt Heater Co.	—
Fanner Mfg. Co.	91	Ryerson & Sons, Inc., Jos. T.	95
Floral City Heater Co.	86	S	
Fox Furnace Co.	85	Sheet Steel Trade Ex. Comm.	—
Forest City-Walworth Run Pdy. Co.	—	Standard Furn. & Supply Co.	86
Fort Selby Hotel.	—	Standard Ventilator Co.	121
Friedley-Voshardt Co.	119	Stearns Register Co., The.	92
G		St. Louis Tech. Inst.	124
Graff Furnace Co.	—	Stover Mfg. & Engine Co.	—
Gerock Bros. Mfg. Co.	119	Sturtevant Co.	—
H		Success Heater Mfg. Co.	—
Harrington & King Perf. Co.	117	T	
Hart & Cooley Co.	91	Taylor Co., N. & G.	—
Henry Furnace & Foundry Co.	88	Technical Products Co.	—
Hess-Snyder Company, The.	—	The Thatcher Co.	—
Hessler Co., H. E.	—	Tuttle & Bailey Mfg. Co.	93
Horan Stay Hanger Co.	119	XXth Century Htg. & Vent. Co.	—
Homer Furnace Co.	—	U	
Hyro Mfg. Co.	—	Unishear Co., Inc.	—
I		V	
Independent Register & Mfg. Co.	91	Vedder Pattern Works.	90
Inland Steel Co.	115	Viking Shear Co.	119
Interstate Machinery Co.	123	W	
K		Warm Air Furnace Fan Co.	—
Kernchen Co.	—	Waterman-Waterbury Co.	96
Kirk-Latty Co.	90	Western Steel Products Co.	—
		Wheeling Corr. Co.	—
		Whitney Mfg. Co., W. A.	117
		Wise Furnace Co.	88
		Wonder Gas Appliance Co.	—

Markets—Continued from Page 116

PASTE		RIDGE ROLL	
Asbestos Dry Paste:		Galv., Plain Ridge Roll, b'd'd	75-15-4%
100-lb. Barrel	\$16 00	Galv., Plain Ridge Roll crated	75-15%
100-lb. barrel	8 75	Globe Finials for Ridge Roll	50%
35-lb. pail	3 50		
10-lb. bag	1 10		
5-lb. bag	60		
3 1/2-lb. cartons	35		
POKERS, FURNACE		SCREWS	
Each	\$0 75	Sheet Metal	
POKERS, STOVE		7, 1/2x1/2, per gross	\$0 52
Nickel Plated, coll handles, per doz.	1 10	No. 10, 1/2x3/16, per gross	68
Wrt Steel, str't or bent, per doz.	\$0 75	No. 14, 1/2x1/2, per gross	88
PIPE		SHEARS, TINNERS' & MACHINISTS'	
Conductor		Viking	\$23 00
Cor. Rd., Plain Rd., or Sq.		Lennox Throatless	
Galvanized		No. 18	35%
Crated and nested (all gauges)	75-7 1/2%	Shear blades	10%
Crated and not nested (all gauges)	75-2 1/2%	(f. o. b. Marshalltown, Iowa)	
Furnace Pipe		SHIELDS, ADJUSTABLE RADIATOR	
Double Wall Pipe and Fittings	50%	No. 1 "Gem" 11" to 17"	30%
Single Wall Pipe, Round		No. 2 "Gem" 14" to 24"	30%
Galvanized Pipe	50%	No. 3 "Gem" 35" to 65"	30%
Galvanized and Tin Fittings	50%		
Lead		SHOES	
Per 100 lbs.	\$12 50	Galv. 28 Gauge, Plain or corrugated round flat crimp	50%
Stove Pipe		26 gauge round flat crimp	45%
"Milecor" "Titelock" Uniform Blue Stove		24 gauge round flat crimp	15%
28 gauge, 6 inch U. C. nested	10 50	SNIPS, TINNERS	
28 gauge, 6 inch U. C. nested	11 00	Clover Leaf	40 & 10%
28 gauge, 7 inch U. C. nested	13 00	National	40 & 10%
28 gauge, 6 inch U. C. nested	9 00	Star	50%
28 gauge, 6 inch U. C. nested	10 00	Milecor	Net
28 gauge, 7 inch U. C. nested	12 00	SQUARES	
T-Joint Made up		Steel and Iron	Net
6-inch, 28 ga....per doz.	\$ 4 00	(Add for bluing \$3 per doz. net)	
All Zinc		Mitre	Net
No. 11, all styles	50%	Try	Net
PULLEYS		Try and Bevel	Net
Furnace Tackle....per doz.	\$0 85	Try and Mitre	Net
Furnace Tackle....per gro.	5 50	For's	per doz. \$5 00
Furnace Screw (enameled)	75	Winterbottom's	10%
PUTTY		STOPPERS, FLUE	
Commercial Putty, 100-lb. Kils	\$3 50	Common	per doz. \$1 10
QUADRANTS		Gem, No. 1	per doz. 1 10
Malleable Iron Damper	10%	Gem, flat, No. 3	per doz. 1 00
REDUCERS—Oval Stove Pipe		VENTILATORS	
7-8, 28-gauge, 1 doz. in carton	\$2 00	Standard	30 to 40%
REGISTERS AND BORDERS		WIRE	
Baseboard, Floor and Wall.		Plain annealed wire, No. 8 per 100 lbs.	\$3 01
Cast Iron	30%	Galvanized barb wire, per 100 lbs.	2 90
Steel and Semi-Steel	40%	Wire Cloth—black painted, 12-mesh, per 100 sq. ft.	1 88
Baseboard, 1 piece	40-30%	Cattle Wire—galvanized catch weight spool, per 100 lbs.	2 90
Baseboard, 3 piece	40%	Galvanized Hog Wire, 80 rod spool, per spool	2 12
Wall	40%	Galvanized Plain Wire, No. 8, per 100 lbs.	2 88
Adjustable Ceiling Ventilators	40%	Stove Pipe, per stone	1 10
Register Faces—Cast and Steel			
Japanned, Bronzed and Plated, 4x8 to 14x14	40%		
Large Register Faces—Cast	40%		
14x14 to 38x42	50%		
Large Register Faces—Steel	40%		
14x14 to 38x42	50%		
Ventilating Register			
Per gross	9 00		
Small, per pair	30		
Large, per pair	50		

A. H. K. FASTENER

HAVE
YOU
SEEN
IT
?



WRITE
FOR
FREE
SAMPLE

FRIEDLEY-VOSHARDT CO.
733-737 So. Halsted St.
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**SHEET METAL ORNAMENTS
AND STATUARY**
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Write for Catalogue

THE EIERMANN Patented ROOFERS TOOLS INTERCHANGEABLE BLADES



A New Blade. A New Tool Every Time, that's what counts, and the weight does the trick. You can do more work with less effort with this tool than any Built of metal

3 1/2" \$4.25
7" \$4.50
14" \$5.00

Extra Blades
3 1/2" 40c, 7" 70c,
14" 80c

other tool on the market. throughout.

Prices—Net. F.O.B. N.Y. Del. P.P. or otherwise C.O.D.

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A. G. Minter, Great Falls, Mont
Fred S. Stewart, 6143 16th St., Detroit, Mich.

Mfg. by WM. EIERMANN, 1971 Fulton St., Bklyn., N. Y.
JOBBER WANTED

VESUVIUS BLOW TORCHES



For Gasoline

In pint or quart sizes.

With quickly removable soldering iron hooks.

Vesuvius Blow Torches are made of brass or non-corrosive oxydized terne plate. The latter is particularly recommended for hard usage.

Write for prices and illustrated circular today

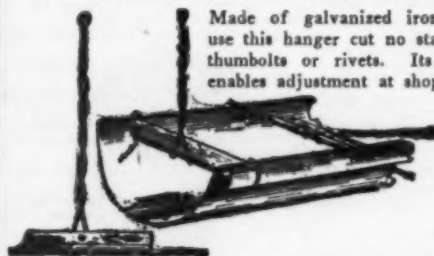
QUICK MEAL STOVE COMPANY

Div. American Stove Company

825 Chouteau Ave.

St. Louis, Mo.

A Revolution In Gutter Hanging



Made of galvanized iron or copper. To use this hanger cut no stays, use no solder, thumbbolts or rivets. Its hinge movement enables adjustment at shop. Nothing to do at building but drive nail.

Make joints in the bead of gutter with hanger adjusted without catching under

the eaves. Stay wire being adjustable, it will hang any kind of hanging eave trough, OG or Box Gutter.

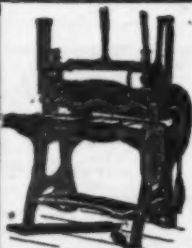
Made in sizes 3, 3 1/2, 4, 4 1/2, 5, 6, 7, 8 and 10 inches.

Packed 1 gross in a package.

THE HORAN STAY HANGER CO., Louisville, Ky.

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This TREADLE GAP SHEAR is made in all standard sizes for No. 14 and lighter gauge sheets. With it, sheets can be squared, trimmed or slit.

We make a complete line of shears, punches and bending rolls, all sizes for hand or belt drive. Write for Catalog "S."

BERTSCH & COMPANY Cambridge City, Ind.



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VIKING SHEAR

Compound LEVER Handle—Removable Blades

A child can work them

VIKING SHEAR CO., Erie, Pa.

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Bolts—Stove.
The Kirk-Latty Co., Cleveland, Ohio
Lamson & Sessions Co., Cleveland, Ohio
Ryerson & Son, Inc., Jos. T., Chicago, Ill.

Brakes—Bending.
Dreis & Krump Mfg. Co., Chicago, Ill.
Ryerson & Son, Inc., Jos. T., Chicago, Ill.

Brakes—Cornice.
Dreis & Krump Mfg. Co., Chicago, Ill.

Brass and Copper.
American Brass Co., Waterbury, Conn.
Copper & Brass Research Association, New York

Burners—Gas.
Wonder-Worker Gas Appliance Co., Cincinnati, Ohio

Cans—Garbage.
Osborn Co., The J. M. & L. A., Cleveland, Ohio

Castings—Malleable.
Fanner Mfg. Co., Cleveland, Ohio

Ceilings—Metal
Burton Co., The W. J., Detroit, Mich.
Friedley-Voshardt Co., Chicago, Ill.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
Wheeling Corrugating Co., Wheeling, W. Va.

Chaplets.
Fanner Mfg. Co., Cleveland, Ohio
Chimney Tops,
Standard Ventilator Co., Lewisburg, Pa.

Clinker Tongs.
L. J. Mueller Furnace Co., Milwaukee, Wis.
Stover Mfg. & Engine Co., Freeport, Ill.

Copper.
American Brass Co., Waterbury, Conn.
Copper & Brass Research Association, New York

Cornices.
Friedley-Voshardt Co., Chicago, Ill.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Cutting Blowpipes.
Oxweld Acetylene Co., New York, N. Y.

Cut-offs—Rain Water.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

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National Regulator Co., Chicago, Ill.

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La Salle Machine Works, Chicago, Ill.

Diffuser—Air Duct.
Aeolus-Dickinson Co., Chicago, Ill.

L. J. Mueller Furnace Co., Milwaukee, Wis.

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Lupton's Sons Co., David, Philadelphia, Pa.

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Parker-Kalon Corp., 200 Varick St., New York

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Barnes Metal Products Co., Chicago, Ill.

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Berger Co., L. D., Philadelphia, Pa.
Burton Co., The W. J., Detroit, Mich.
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Wheeling Corrugating Co., Wheeling, W. Va.

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Dieckmann Co., Ferdinand, Cincinnati, Ohio
Lupton's Sons Co., David, Philadelphia, Pa.
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Auer Register Co., Cleveland, Ohio
American Wood Register Co., Plymouth, Ind.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Fences.
American Steel & Wire Co., Chicago, Ill.

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Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Flanges.
Chicago Metal Mfg. Co., Chicago, Ill.

Fittings—Steel Pipe.
Chicago Metal Mfg. Co., Chicago, Ill.

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Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

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Connors Paint Mfg. Co., Wm., Troy, N. Y.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

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Technical Products Co., Pittsburgh, Pa.

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Sturtevant Co., B. F., Boston, Mass.

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B & F Mfg. Co., Des Moines, Iowa

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Warm Air Furnace Fan Co., Cleveland, Ohio

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National Regulator Co., Chicago, Ill.

Furnace Regulators.
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Forest City-Walworth Run Foundries Co., Cleveland, O.
Milwaukee Corrugating Co., Milwaukee, Wis.

Furnaces—Gas.
Mueller Furnace Co., L. J., Milwaukee, Wis.

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Brillion Furnace Co., Brillion, Wis.
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Waterman-Waterbury Co., Minneapolis, Minn.
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Prest-O-Lite Co., Inc., New York, N. Y.

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Linde Air Products Co., New York, N. Y.

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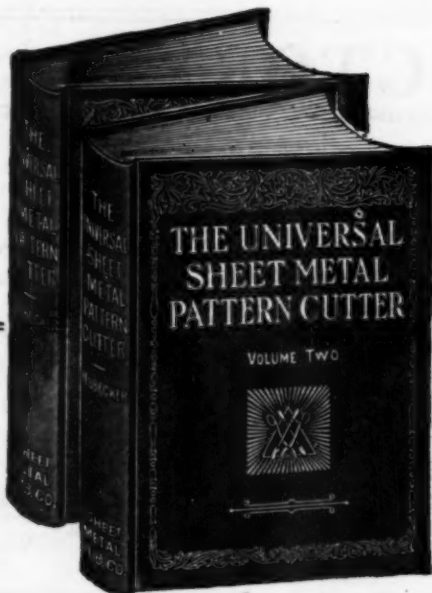
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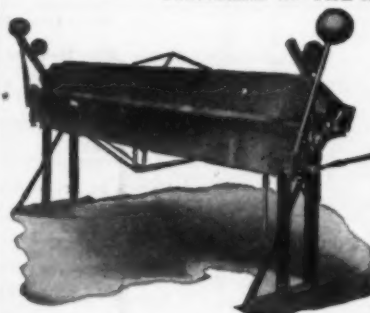
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Position wanted by first-class sheet metal worker as working foreman for work as may come in first-class sheet metal shop. Can read blue prints, figure work, cut patterns and do work if required. Best of references furnished. Address **P. O. Box 603, Weldon, N. C.** **J-481**

Position wanted as branch manager for furnace manufacturer wholesale or retail Chicago territory. Qualified in all departments. Now employed but want to make a change October 1st. Address **J-482 AMERICAN ARTISAN, 620 So. Michigan Ave., Chicago, Ill.**

Position wanted by all around tinner. 25 years' experience. Can do outside and inside work, also furnace work. Married and can come at once. Address **W. J. Mack, 212 First Avenue South, St. Charles, Ill.** **H-481**

I am desirous of purchasing a sheet metal shop in a town of at least 10,000 population. Please state full particulars. Address **L-481, AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Ill.**

HELP WANTED

Wanted—Tinner and handy man. Steady work and two furnished rooms included. State wages. Address **Eckhard Mercantile Co., 512 E. Broadway, Alton, Illinois.** **R-481**

Wanted at once—First-class manager. Must be familiar with estimating, plumbing and heating, handling men, a hustler and business getter. A real opportunity for a man who is seeking advancement. Address **D-481, AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Ill.**

Wanted—First-class manager and estimator. Must be familiar with plumbing, heating and sheet metal work and must be able to handle men. A real opportunity for a man who is seeking advancement. Write Independent Supply Company, West Frankfort, Ill. **G-482**

Wanted—All around furnace and sheet metal man. Hardware store in connection. Must be able to help out where needed. Good wages and steady job for right man. Address **H-482 AMERICAN ARTISAN, 620 So. Michigan Ave., Chicago, Ill.**

We need a man between 30 and 40 years of age to do general outdoor work. He must also be a good furnace man for repairing and installing. Want a hustler and must have good reason for quitting present employer. Let us hear from you at once. Address **F-481, AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.**

Wanted—All around, first class sheet metal worker to take charge of shop; must be fully experienced on all classes of work. This is a steady position and if you are looking for something temporary do not answer. Address **Meyers Sheet Metal Works, Janesville, Wisconsin.** **S-481**

HELP WANTED

Wanted at once, all around man to do class of work that comes in a country tin shop; must be able to do plumbing and drive a car; want a sober man and one who will be on the job. Wages \$30 per week year around. Address **T-481, AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.**

Wanted—Plumbers and furnace men. Good, steady, clean work. Prefer combination men who can install steam, hot water and furnaces. No boozers. Write at once to 461 11th Ave., Milwaukee, Wis. **L-482**

Wanted—A first class sheet metal worker and a good furnace installer; \$7½ cents per hour. Address **W-481, AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.**

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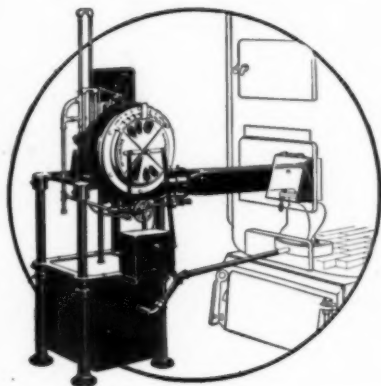
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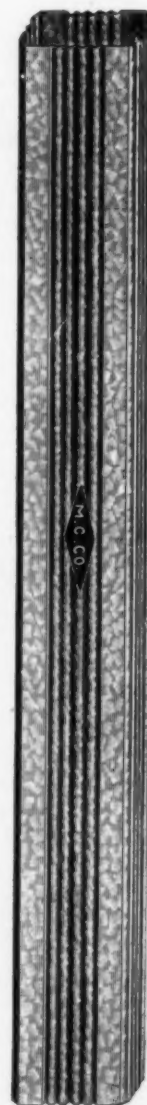
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